17" Auto scan Colour Monitor

Chassis :M32

Service
Service
Service

M32 107E4 GS_3

EPA POLLUTION PREVENTER

DDC/Power saving/MPR II/TCO

107E41/00C

Service Manual

Horizontal frequencies
30 - 70 kHz

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SAFETY NOTICE

ANY PERSON ATTEMPTING TO SERVICE THIS CHASSIS MUST FAMILIARIZE HIMSELF WITH THE CHASSIS AND BE AWARE OF THE NECESSARY SAFETY PRECAUTIONS TO BE USED WHEN SERVICING ELECTRONIC EQUIPMENT CONTAINING HIGH VOLTAGES.

CAUTION: USE A SEPARATE ISOLATION TRANSFORMER FOR THIS UNIT WHEN SERVICING.

REFER TO BACK COVER FOR IMPORTANT SAFETY GUIDELINES

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飛利浦 PHILIPS PHILIPS

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IMPORTANT SAFETY NOTICE

Proper service and repair is important to the safe, reliable operation of all PHILIPS Company** Equipment.
The service procedures recommended by PHILIPS and described in this service manual are effective methods of performing service operations. Some of these service operations require the use of tools specially designed for the purpose. The special tools should be used when and as recommended.

It is important to note that this manual contains various CAUTIONS and NOTICES which should be carefully Read in order to minimize the risk of personal injury to service personnel. The possibility exists that improper Service methods may damage the equipment. It also is important to understand that these CAUTIONS and NOTICES ARE NOT EXHAUSTIVE. PHILIPS could not possibly know, evaluate and advise the service trade of all conceivable ways in which service might be done or of the possible hazardous consequences of each way. Consequently, PHILIPS has not undertaken any such broad evaluation. Accordingly, a servicer who uses a service procedure or tool which is not recommended by PHILIPS must first satisfy himself thoroughly that neither his safety nor the safe operation of the equipment will be jeopardized by the service method selected.

* * Hereafter throughout this manual, PHILIPS Company Will be referred to as PHILIPS.

FOR PRODUCTS CONTAINING LASER :

DANGER- Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CAUTION- Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CAUTION- The use of optical instruments with this product will increase eye hazard.

TO ENSURE THE CONTINUED RELIABILITY OF THIS PRODUCT, USE ONLY ORIGINAL MANUFACTURER'S REPLACEMENT PARTS, WHICH ARE LISTED WITH THEIR PART NUMBERS IN THE PARTS LIST SECTION OF THIS SERVICE MANUAL.

WARNING

Critical components having special safety characteristics are identified with a ⚠ by the Ref. No. in the parts list and enclosed within a broken line* (where several critical components are grouped in one area) along with the safety symbol ⚠ on the schematics or exploded views.

Use of substitute replacement parts which do not have the same specified safety characteristics may create shock, fire, or other hazards.

Under no circumstances should the original design be modified or altered without written permission from PHILIPS. PHILIPS assumes no liability, express or implied, arising out of any unauthorized modification Of design.
Servicer assumes all liability.

*** Broken Line**

Technical Specification*

CRT

Size and deflection :17 inch/41cm, flat/square
Deflection angle : 90 degrees
Dot pitch : 0.27mm with black matrix
Face treatment : Anti-glare, anti-static,
Light transmission : 47%
Phosphor : P22

Recommended display area : 12.0" x 9.0" / 306 x 230 mm
Maximum display area : 12.9" x 9.7" / 327 x 245 mm

Scanning
Horizontal scanning : 30 - 70 KHz
Vertical scanning : 50 - 160 Hz

Video
Video dot rate : 108 Mhz

Input impedance
-Video : 75 Ohms
- Sync : 2.2K Ohms

Signal input level : 0.7Vpp
Separate sync

Sync input signal : Separated sync. with TTL level
Sync polarities : Positive or negative

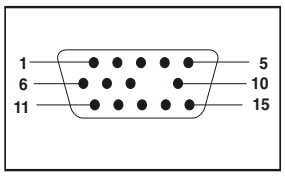
White Color Temperature
Chromaticity CIE coordinates:
at 9300 °k x = 0.283 +/- 0.015 y = 0.297 +/- 0.015
at 6500 °k x = 0.313 +/- 0.015 y = 0.329 +/- 0.015

Carton box
Size (with pedestal) : 399(W)x410(H)x408(D)
Net weight : 15 Kg
Power supply : 90 - 264 VAC, 50/60 3Hz
Power consumption : 90 Watts Max.

Operating condition
Temperature : 0 °C - 40 °C
Relative Humidety : 10 % - 90 % (W/O condensation)

Storage condition
Temperature : - 25 °C - 65 °C
Relative Humidity : 5 % - 95 % (W/O condensation)

Pin assignment :



The 15-pin D-sub connector(male) of the signal cable :

Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Logic. Ground
3	Blue video input	11	Identical output-connected to pin 10
4	Identical output-connected to pin 10	12	Serial data data(SDA)
5	fground	13	H.Sync /H + V
6	Red video ground	14	V.Sync(VCLK for DDC)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

Data Storage

Factory preset modes:

This monitor has 8 factory-preset modes as indicated in the following table :

	Mode	Resolution	Frequen		Sync polarity	
			H(KHz)	V(Hz)	H	V
M01	VGA	720 x 400	31.5	70	-	+
M02	VGA	640 x 480	31.47	60	-	-
M03	VGA	640 x 480	43.3	85	-	-
M04	SVGA	800 x 600	46.9	75	+	+
M05	SVGA	800 x 600	53.674	85	+	+
M06	EVGA	1024 x 768	60.0	75	+	+
M07		1280 x 1024	64.0	60	+	+
M08	EVGA	1024 x 768	68.7	85	+	+

Automatic Power Saving

If you have VESA's DPMS compliance display card or software installed in your PC, the monitor can automatically reduce power consumption when power saving function active. And if an input from keyboard, mouse or other input devices is detected, the monitor will automatically "wake up". The following table shows the power consumption and signaling of this automatic power saving feature :

Power Management Definition						
VESA's mode	VIDEO	H-SYNC	V-SYNC	POWER USED	POWER SAVING(%)	LED COLOR
ON	Active	Yes	Yes	<64 w	0 %	Green
Stand-by	Blanked	No	Yes	<2 w	96 %	Yellow
Suspend	Blanked	Yes	No	<2 w	96 %	Yellow
OFF	Blanked	No	No	<2 w	96 %	Yellow

This monitor is ENERGY STAR compliant.

As an ENERGY STAR Partner, PHILIPS has determined that this product meets the ENERGY STAR guidelines for energy efficiency

ENERGY STAR® is a U.S. registered mark. AS AN ENERGY STAR PARTNER, DELL Computer Corporation HAS DETERMINED THAT THIS PRODUCT MEETS THE ENERGY STAR GUIDELINES FOR ENERGY EFFICIENCY.

Front control & OSD

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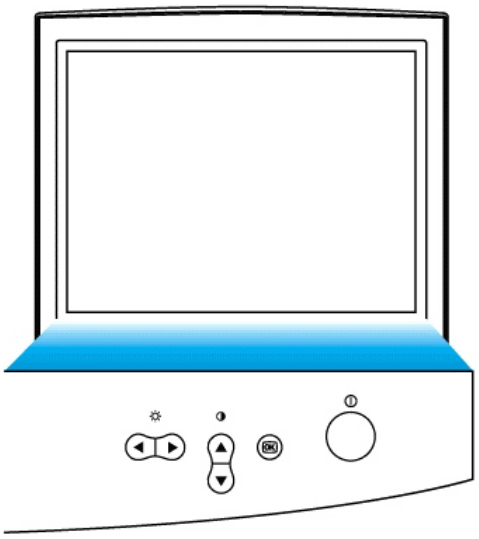
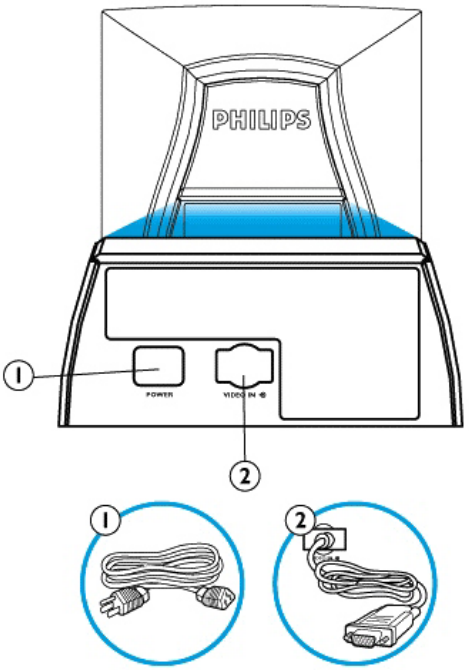
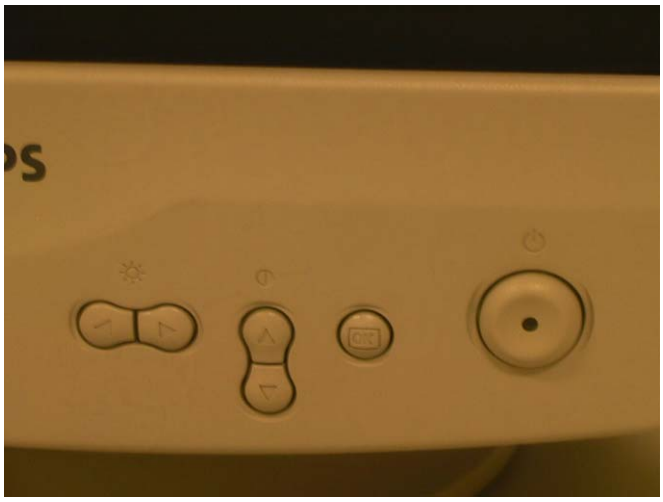
Front View



Rear view



Front control



1. Power in - attach power cable here.
2. Video In - this is a cable which is already attached to your monitor. Connect the other end of the cable to your PC.

Description of the On Screen Display

What is the On-Screen Display?

This is a feature in all Philips monitors which allows an end-user to adjust screen performance of monitors directly though an on-screen instruction window. The user interface provides user-friendliness and ease-of-use when operating the monitor.

Basic and simple instruction on the control keys.

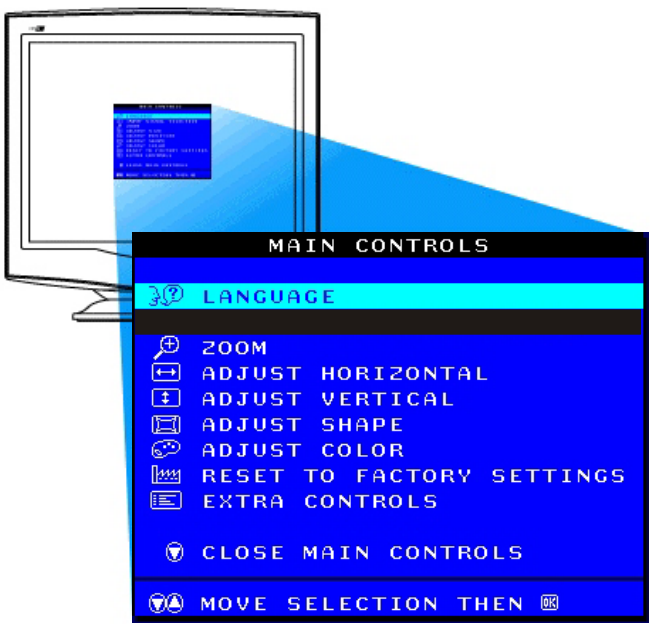
On the front controls of your monitor, once you press the OK button, the On Screen Display (OSD) Main Controls window will pop up and you can now start making adjustments to your monitor's various features. Use the ◀ ▶ or ▲ ▼ the keys to make your adjustments within.

Power button switches your monitor on.
OK button which when pressed will take you to the OSD controls

Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.
UP and DOWN buttons are used when adjusting the OSD of your monitor

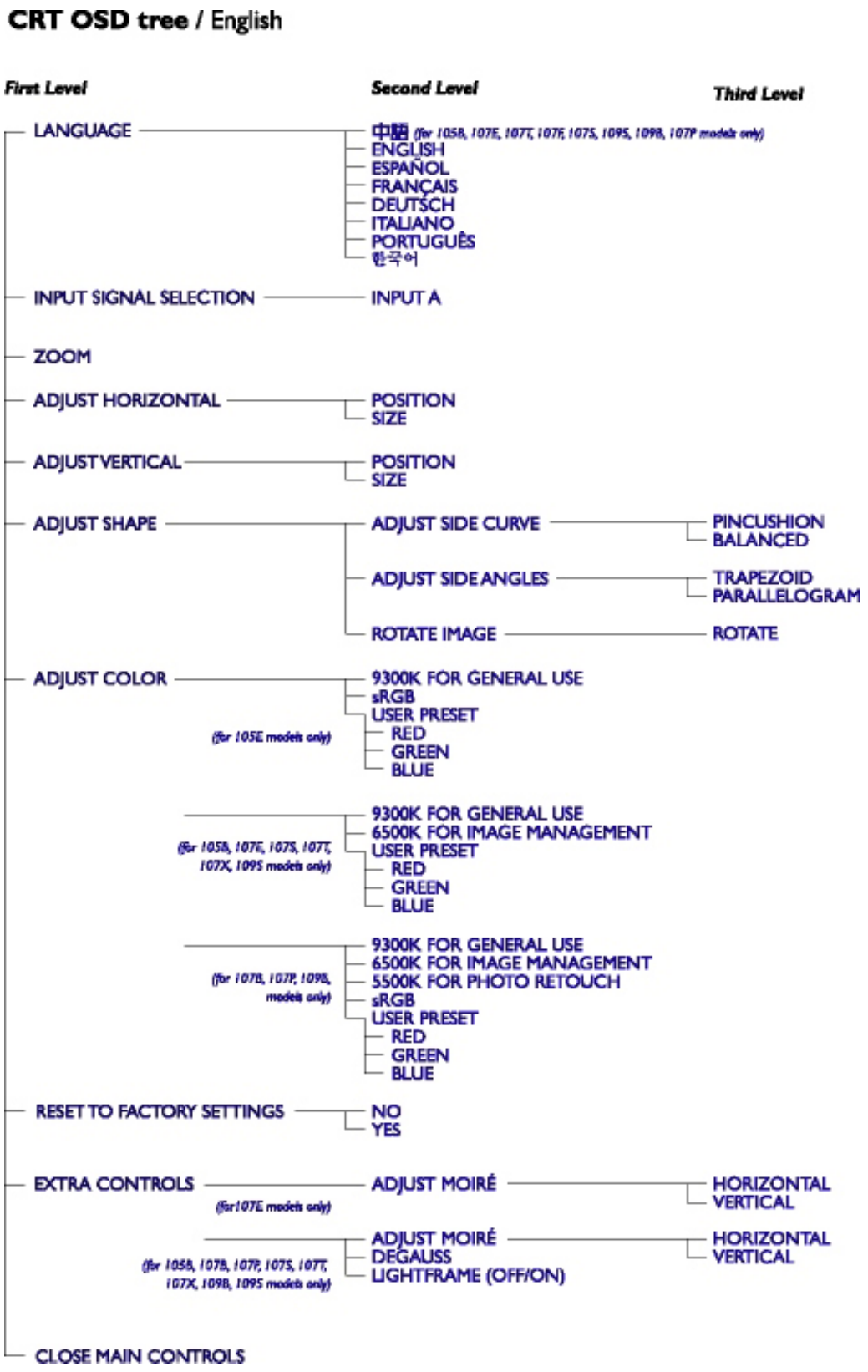
Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.

LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.



The OSD Tree

Below is an overall view of the structure of the On-Screen Display. You can use this as reference when you want to later on work your way around the different adjustments.



OSD Adjustments

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The OSD Controls

BRIGHTNESS

To adjust your screen's brightness, follow the steps below. Brightness is the overall intensity of the light coming from the screen. A 50% brightness is recommended.

1) Press the ◄ or ► button on the monitor. The BRIGHTNESS window appears.

2) Press the ◄ or ► button to adjust the brightness.

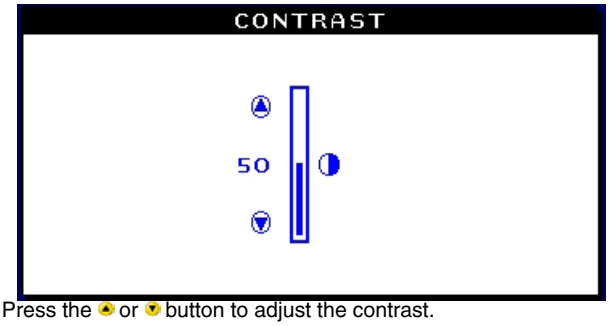
3) When the brightness is adjusted to the level desired, stop pressing the ◄ or ► button and after three seconds the BRIGHTNESS window will disappear with the new adjustment saved.

Smart Help After the BRIGHTNESS window has disappeared, to continue to the CONTRAST window, follow the steps under CONTRAST.

CONTRAST

To adjust your screen's contrast, follow the steps bellow. Contrast is the difference between the light and dark areas on the screen. A 100% contrast is recommended.

1) Press the ▲ or ▼ button on the monitor. The CONTRAST window appears.



2) Press the ▲ or ▼ button to adjust the contrast.

3) When the contrast is adjusted to the level desired, stop pressing the ▲ or ▼ button and after three seconds the CONTRAST window will disappear with the new adjustment saved.

Smart Help After the CONTRAST window has disappeared, to continue to the MAIN CONTROLS, follow the steps under LANGUAGE

LANGUAGE

The ON SCREEN DISPLAY shows its settings in one of five languages. The default is English, but you can select French, Spanish, German, or Italian.

1) Press the OK button on the monitor. The MAIN CONTROLS window appears. LANGUAGE should be highlighted.

2) Press the OK button again. The LANGUAGE window appears.

3) Press the ▲ or ▼ button until the desired language is highlighted.

4) Press the OK button to confirm your selection and return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted...

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to INPUT SIGNAL SELECTION, press the ▲ button until INPUT SIGNAL SELECTION is highlighted. Next, follow steps 3 - 5 under INPUT SIGNAL SELECTION.

. . . to exit completely, press the OK button

OSD Adjustments (Continued)

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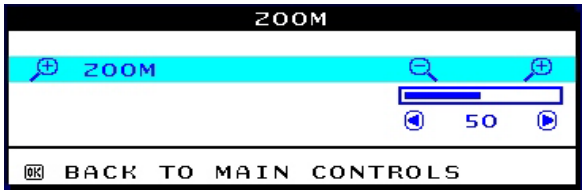
ZOOM

ZOOM increases or decreases the size of the images on your screen. To adjust the ZOOM follow the steps below.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ZOOM is highlighted.

3) Press the button. The ZOOM window appears.



4) Press the or button to adjust ZOOM.

5) Press the button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST HORIZONTAL, press the button until ADJUST HORIZONTAL is highlighted. Next, follow steps 3 - 7 under ADJUST HORIZONTAL.

. . . to exit completely, press the button

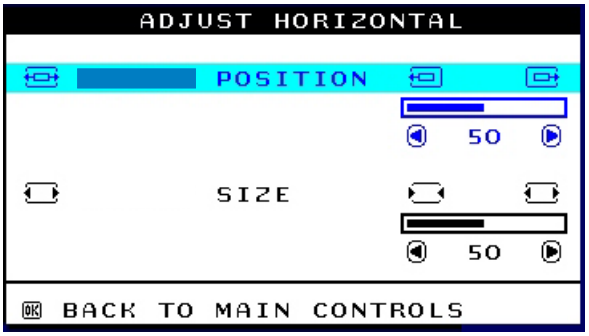
ADJUST HORIZONTAL

ADJUST POSITION under ADJUST HORIZONTAL shifts the image on your screen either to the left or right. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST HORIZONTAL expands or controls the image on your screen, pushing it out toward the left and right sides or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

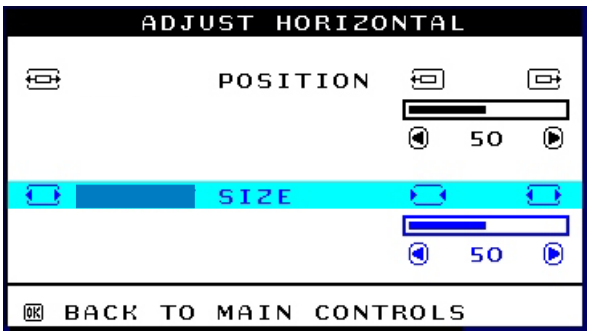
2) Press the button until ADJUST HORIZONTAL is highlighted.

3) Press the button. The ADJUST HORIZONTAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image to the left or right.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the to highlight ADJUST SIZE.



6) To adjust the horizontal size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST VERTICAL, press the button until ADJUST VERTICAL is highlighted. Next, start with step 3 under ADJUST VERTICAL and follow the directions.

. . . to exit completely, press the button

ADJUST VERTICAL

ADJUST POSITION under ADJUST VERTICAL shifts the image on your screen either up or down. Use this feature if your image does not appear centered. ADJUST SIZE under ADJUST VERTICAL expands or controls the image on your screen, pushing it out toward the top or bottom or pulling it in toward the center.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

OSD Adjustments (Continued)

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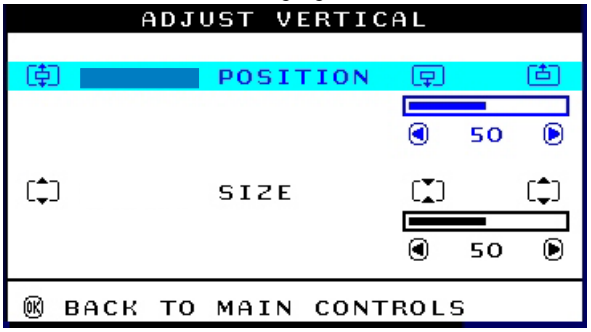
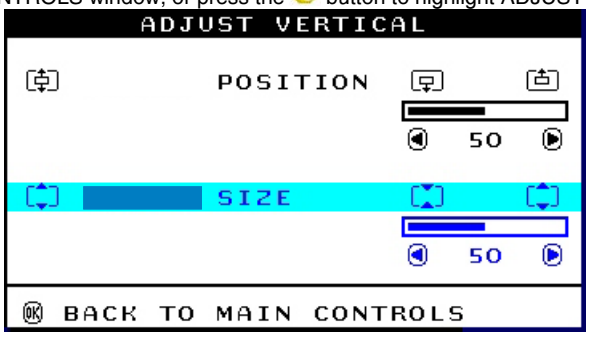
2) Press the button until ADJUST VERTICAL is highlighted.

3) Press the button. The ADJUST VERTICAL window appears. ADJUST POSITION should be highlighted.



4) Press the or button to move the image up or down.

5) When the position is adjusted, press the button to return to MAIN CONTROLS window, or press the button to highlight ADJUST SIZE.



6) To adjust the vertical size, press the or button.

7) When the size is adjusted, press the button to return to MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST SHAPE, press the button until ADJUST SHAPE is highlighted. Next, start with step 3 under ADJUST SHAPE and follow the directions.

. . . to exit completely, press the button

ADJUST SHAPE

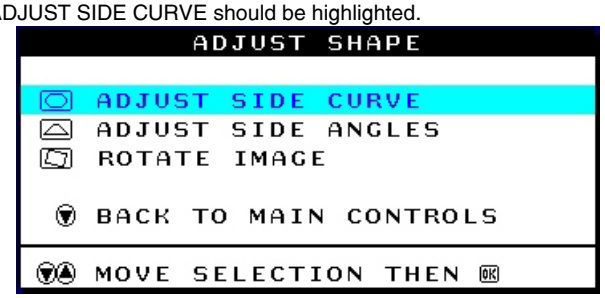
ADJUST SIDE CURVE

ADJUST SIDE CURVE under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use these features only when the picture is not square.

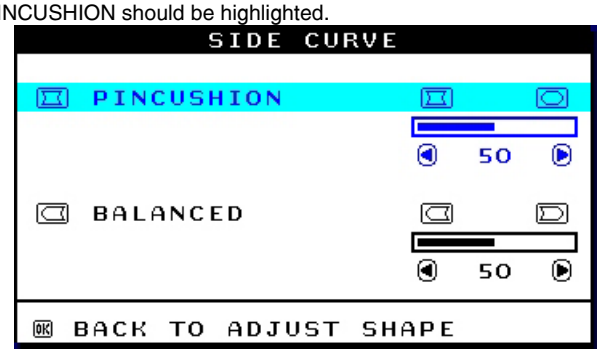
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.

3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

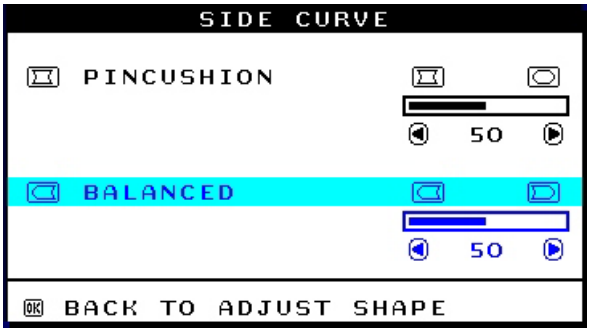


4) Press the button. The SIDE CURVE window appears. PINCUSHION should be highlighted.



5) To adjust the pincushion, press the or button.

6) When the pincushion is adjusted, press the button to highlight BALANCED or press the button to return to the ADJUST SHAPE window.



7) To adjust the balanced pincushion, press the or button.

8) When the balanced pincushion is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

9) Press the button to return to the MAIN CONTROLS window, or press the button until ADJUST SIDE ANGLES is highlighted.

OSD Adjustments (Continued)

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Smart Help After returning to MAIN CONTROLS . . .

...to continue to ADJUST SIDE ANGLES, start with step 5 under ADJUST SIDE ANGLES and follow the directions.

...to exit completely, press the button twice.

...to adjust only the BALANCED pincushion, follow steps 1 - 4 above, then press the button, and follow steps 7 - 9.

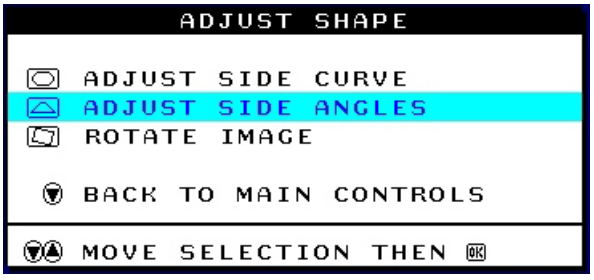
ADJUST SIDE ANGLES

ADJUST SIDE ANGLES under ADJUST SHAPE allows you to adjust two of the five preset options. These two options are TRAPEZOID and PARALLELOGRAM. Note: use these features only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

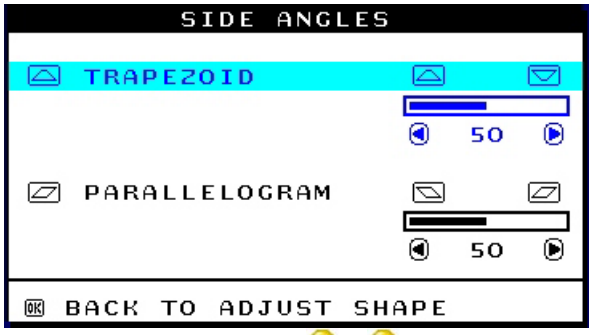
2) Press the button until ADJUST SHAPE is highlighted.

3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.



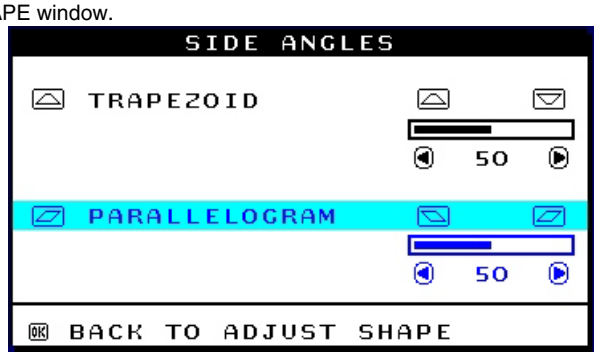
4) Press the button to highlight ADJUST SIDE ANGLES.

5) Press the button. The SIDE ANGLES window appears. TRAPEZOID should be highlighted.



6) To adjust the trapezoid, press the or button.

7) When the trapezoid is adjusted, press the button to highlight PARALLELOGRAM or press the button to return to the ADJUST SHAPE window.



8) To adjust the parallelogram, press the or button.

9) When the parallelogram is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN WINDOWS will be highlighted.

10) Press the button to return to the MAIN CONTROLS window, or press the button until ROTATE IMAGE is highlighted.

Smart Help After returning to MAIN CONTROLS . . .

...to continue to ROTATE IMAGE, start with step 5 under ROTATE IMAGE and follow the directions.

...to exit completely, press the button twice.

...to adjust only the PARALLELOGRAM, follow steps 1 - 4 above, then press the button, and follow steps 7 -9

ROTATE IMAGE

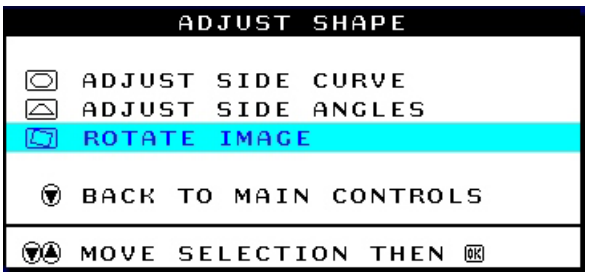
ROTATE IMAGE under ADJUST SHAPE allows you to adjust one of the five preset options. These two options are PINCUSHION and BALANCED pincushion. Note: use this feature only when the picture is not square.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST SHAPE is highlighted.

3) Press the button. The ADJUST SHAPE window appears. ADJUST SIDE CURVE should be highlighted.

4) Press the arrow until ROTATE IMAGE is highlighted.



OSD Adjustments (Continued)

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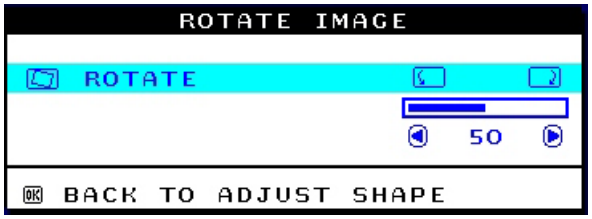
5) Press the button. The ROTATE IMAGE window appears. ROTATE should be highlighted.



6) To adjust the rotation, press the or button.

7) When the rotation is adjusted, press the button to return to the ADJUST SHAPE window. BACK TO MAIN CONTROLS should be highlighted.

8) Press the button to return to MAIN CONTROLS.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to ADJUST COLOR, press the button until ADJUST COLOR is highlighted. Next, start with step 3 under ADJUST COLOR and follow the directions.

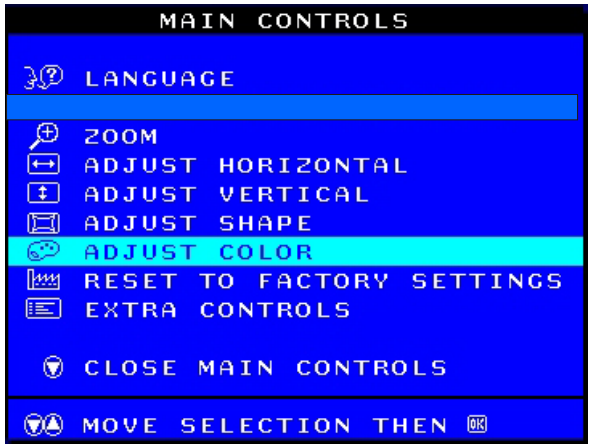
...to exit completely, press the button twice.

ADJUST COLOR

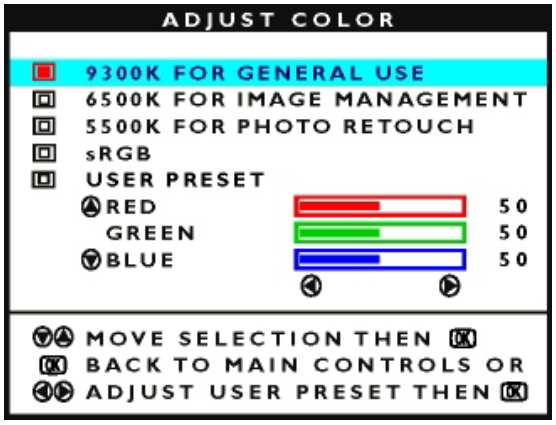
Your monitor has two preset options you can choose from. The first option is for GENERAL USE, which is fine for most applications. The second option is for GAMES, which is for playing computer games. When you select one of these options, the monitor automatically adjusts itself to that option. There is also a third option, USER PRESET, which allows you to adjust the colors on your screen to a setting you desire.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until ADJUST COLOR is highlighted.

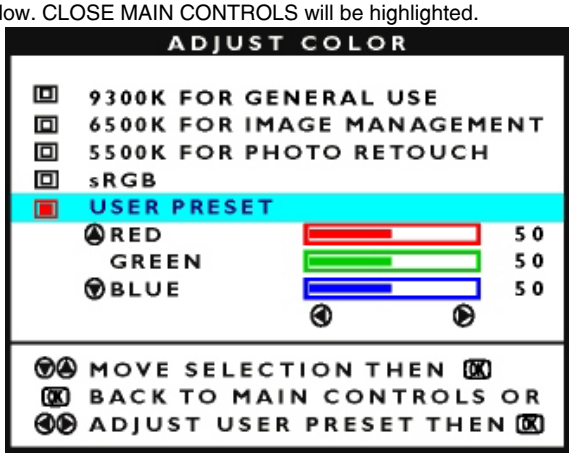


3) Press the button. The ADJUST COLOR window appears.



4) Press the or button to highlight 9300K for GENERAL USE, 6500K for GAMES, or USER PRESET.

5) Once you have highlighted GENERAL USE or GAMES, press the button to confirm you selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.



6a) If USER PRESET is highlighted, press the button to highlight RED. Next, press the LEFT CURSOR or RIGHT CURSOR button to adjust the color red.

6b) When finished with RED, press the button to highlight GREEN. Next, press the or button to adjust the color green.

6c) When finished GREEN, press the button to highlight BLUE. Next, press the or button to adjust the color blue.

6d) When all adjustments are complete, press the button to confirm your adjustments and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS. . .

. . . to continue to RESET TO FACTORY SETTINGS, press the button until RESET TO FACTORY SETTINGS is highlighted. Next, start with step 3 under RESET TO FACTORY SETTINGS.

. . . to exit completely, press the button.

RESET TO FACTORY SETTINGS

RESET TO FACTORY SETTINGS returns everything in all the windows to factory presets.

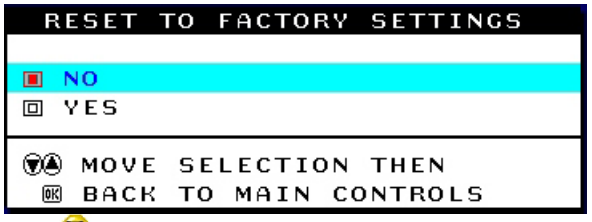
1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until RESET TO FACTORY SETTINGS is highlighted.

3) Press the button. The RESET TO FACTORY SETTINGS window appears.

OSD Adjustments (Continued)

4) Press the ▲ or ▼ button to select YES or NO. NO is the default. YES returns all settings to their original factory adjustments.



5) Press the OK button to confirm your selection and return to the MAIN CONTROLS window. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to EXTRA CONTROLS, press the ▲ button until EXTRA CONTROLS is highlighted. Next, start with step 3 under EXTRA CONTROLS.

. . . to exit completely, press the OK button.

EXTRA CONTROLS

ADJUST MOIRE

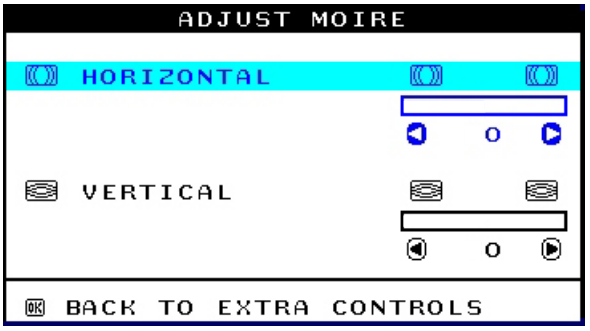
EXTRA CONTROLS is a set of three features, including ADJUST MOIRE. Moire is a fringe pattern arising from the interference between two superimposed line patterns. To adjust your moire, follow the steps below. Note: Use only if necessary. By activating ADJUST MOIRE, sharpness can be affected.

1) Press the OK button on the monitor. The MAIN CONTROLS window appears.

2) Press the DOWN CURSOR button until EXTRA CONTROLS is highlighted.

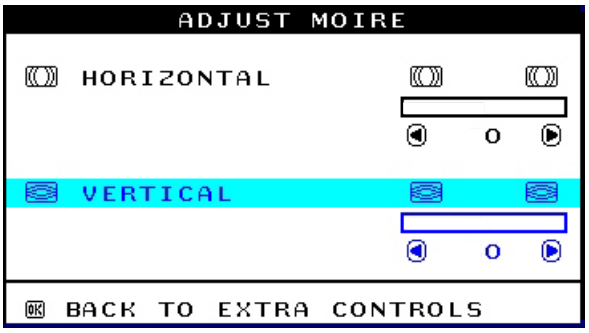
3) Press the OK button. The EXTRA CONTROLS window appears. will ADJUST MOIRE will be highlighted.

4) Press the OK button. The ADJUST MOIRE window appears. HORIZONTAL will be highlighted.



5) To adjust the horizontal moire, press the ◄ or ► button.

6) When the horizontal moire is adjusted, press the ▼ button to highlight VERTICAL.



7) To adjust the vertical moire, press the ◄ or ► button.

8) When the vertical moire is adjusted, press the OK button to return to the EXTRA CONTROLS window. BACK TO MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to continue to DEGAUSS, press the ▲ button until DEGAUSS is highlighted. Next, start with step 3 under EXTRA CONTROLS, DEGAUSS.

. . . to exit completely, press the OK button.

OSD Adjustments (Continued), Troubleshooting

Go to cover page

DEGAUSS

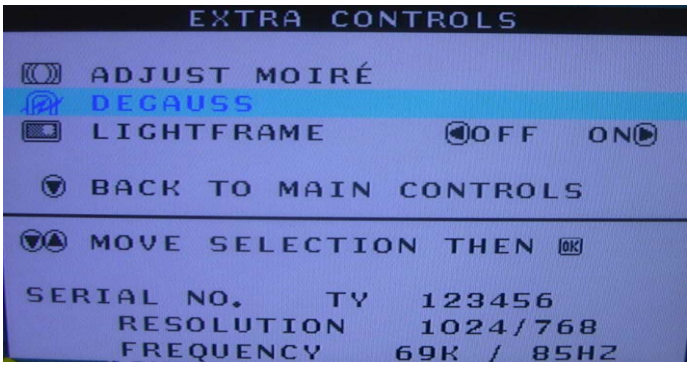
EXTRA CONTROLS is a set of three features, including DEGAUSS. Degaussing removes electromagnetic build up that may distort the color on your screen.

1) Press the button on the monitor. The MAIN CONTROLS window appears.

2) Press the button until EXTRA CONTROLS is highlighted.

3) Press the button. The EXTRA CONTROLS window appears. ADJUST MOIRE will be highlighted.

4) Press the button until DEGAUSS is highlighted.



5) To degauss your screen, press the button. Your screen will be degaussed, then the MAIN CONTROLS window will reappear. CLOSE MAIN CONTROLS will be highlighted.

Smart Help After returning to MAIN CONTROLS . . .

. . . to exit completely, press the button.

CLOSE MAIN CONTROLS

Monitor Specific Troubleshooting

Self-Test Feature Check (STFC)

Your monitor provides a self-test feature that allows you to check whether your monitor is functioning properly. If your monitor and computer are properly connected but the monitor screen remains dark, run the monitor self-test by performing the following steps:

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer.
3. Turn on the monitor.

If the monitor is functioning properly, you will see a OSD message as shown in the following illustration:

This box also appears during normal system operation if the video cable becomes disconnected or damaged. This box will remain on for one minute, go off five seconds, then on for one minute, and will repeat cycle.

1. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
2. While in self-test mode, the LED remains green and the pattern remains on and stationary.

If your monitor screen still remains dark after you use the previous procedure, check your video controller and computer system; your monitor is functioning properly.

NO SIGNAL INPUT

If there is something wrong with the input signal, a message appears on the screen although the power indicator LED is still on. The message may indicate that the monitor is NO SIGNAL INPUT or that you need to check the signal cable.

Front Control

Power button switches your monitor on.

OK button which when pressed will take you to the OSD controls

Contrast hotkey. When the UP arrow is pressed, the adjustment controls for the CONTRAST will show up.

UP and DOWN buttons are used when adjusting the OSD of your monitor

Brightness hotkey. When the RIGHT arrow is pressed, the adjustment controls for BRIGHTNESS will show up.

LEFT and RIGHT buttons, like the UP and DOWN buttons, are also used in adjusting the OSD of your monitor.

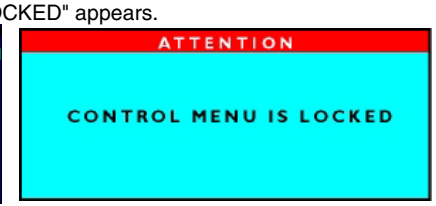
OSD Lock

OSD lock is a feature which disables the OSD controls. It can be used when the monitor is set up for demonstration purposes or when adjustment of the OSD is not desirable.

Switch on OSD lock feature:

Press and hold the button continuously for 15 seconds.

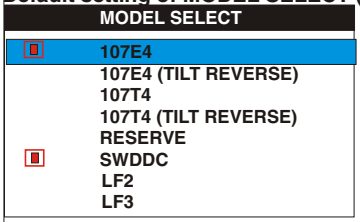
Release the button when the message "CONTROL MENU IS LOCKED" appears.



Switch off OSD lock feature:

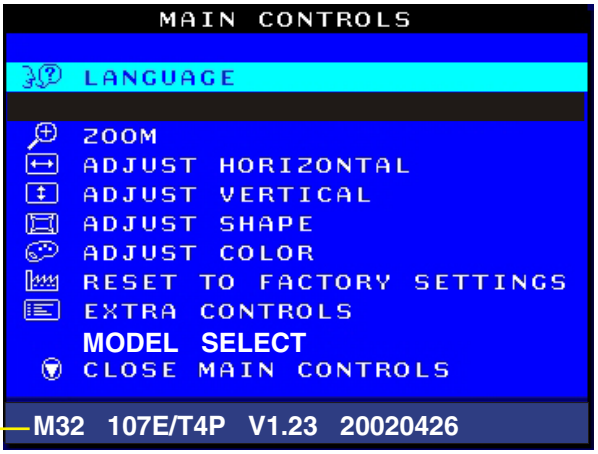
Press and hold the button continuously for 15 seconds or until the message window "CONTROL MENU IS LOCKED" disappears, and "MAIN CONTROLS" appears.

Default setting of MODEL SELECT (Do not change it.)



To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press " " and " " simultaneously on the front control panel,then press " ",wait till the OSD menu with characters M32 107E/T4P V1.23 20020426 (below OSD menu)" come on the screen of monitor.



Factory Mode Indicator

3. If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
4. Using " " : to select OSD menu.
5. Using " " : to increase or decrease the setting.
6. Using " " to access/confirm the selection.

To leave factory mode

7. After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

To access BURN IN mode

First of all, monitor displays an image.

1. Disconnect the video cable (interface cable).
2. Turn off monitor
3. Press " " and " " simultaneously on the front control panel,then the BURN IN mode comes on the screen of monitor as below.

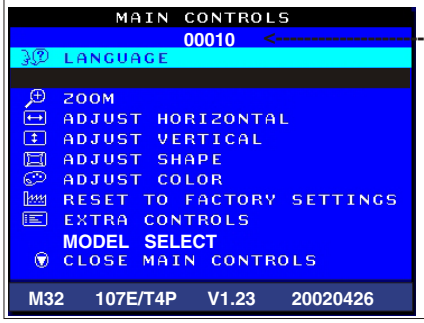
50 seconds around

5 seconds around

repeatly

4. **Reconnect the video cable, then return to normal image.**

SERVICE MODE (Indication-Factory mode)



00010: stands for
1. using 10 hours already.
2. turn on/off 10 times.
3. using several hours + turn on/off monitor.

Go to cover page

Warning and Notes

Warnings

1. Safety regulations require that the unit should be returned in its original condition and that components identical to the original components are used. The safety components are indicated by the symbol ⚠ .

2. In order to prevent damage to ICs and transistors, all high-voltage flash-overs must be avoided. In order to prevent damage to the picture tube, the method shown in Fig. 1 should be used to discharge the picture tube. Use a high-voltage probe and a multimeter (position DC-V). Discharge until the meter reading is **0 V** (after approximately 30 seconds).

3. **ESD**
   All ICs and many other semiconductors are sensitive to electrostatic discharges (ESD). Careless handling during repair can drastically shorten their life. Make sure that during repair you are connected by a pulse band with resistance to the same potential as the ground of the unit. Keep components and tools also at this same potential.

4. When repairing a unit, always connect it to the AC Power voltage via an isolating transformer.

5. Be careful when taking measurements in the high-voltage section and on the picture tube panel.

6. It is recommended that saferty goggles be worn when replacing the picture tube.

7. When making adjustments,use plastic rather than metal tools. This will prevent any short-circuit or the danger of a circuit becoming unstable.

8. Never replace modules or other components while the unit is switched on.

9. Together with the defleciton unit, the picture tube is used as an integrated unit. Adjustment of this unit during repair is not recommended.

10. After repair, the wiring should be fastened in place with the cable clamps.

11. All units that are returned for service or repair must pass the original manufactures safety tests.

Notes

1. The direct voltages and waveforms are average voltages. They have been measured using the Service test software and under the following conditions :
   - Mode : 640 * 480 (31.5kHz / 60Hz)
   - Signal pattern : grey scale
   - Adjust brightness and contrast control for the mechanical mid-position (click position)

2. The picture tube panel has printed spark gaps. Each spark gap is connected between an electrode of the picture tube and the Aquadag coating.

3. The semiconductors indicated in the circuit diagram(s) and in the parts lists are completely interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

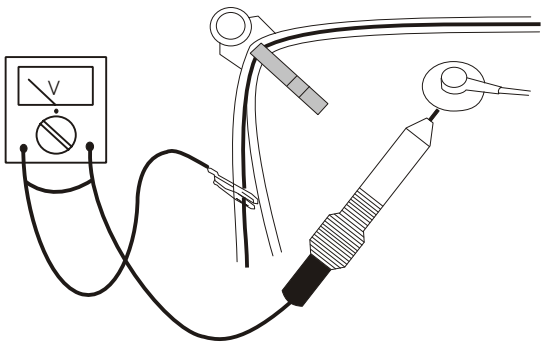


Fig.1

Mechanical Instructions

0. General
To be able to perform measurements and repairs on the "circuit boards", these unit should placed in the service position first.

1.Remove the rear cover
-Remove right and left lib (screw cover) on the back cover as shown in Fig. 1.
-Remove 4 screws as shown in Fig. 2.
-Remove back cover as shown in Fig. 3.

2. Remove pedestal as shown in Fig. 4.

3. Video panel
- Disconnect the wire between metal shield of Video panel and CRT neck as shown in Fig. 5.
- Disconnect the CRT ground "1703" from Video panel.

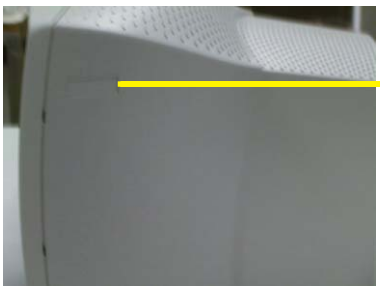


Fig. 1

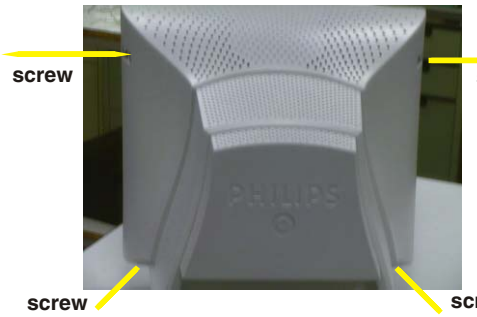


Fig. 2

Fig. 3

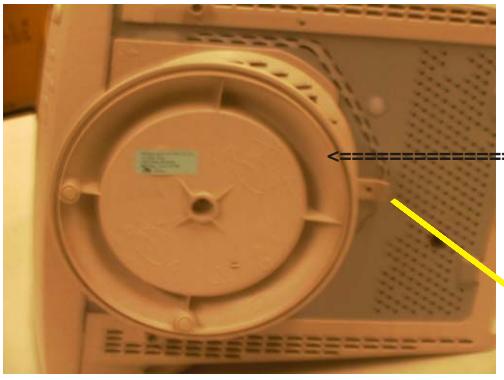


Fig. 4

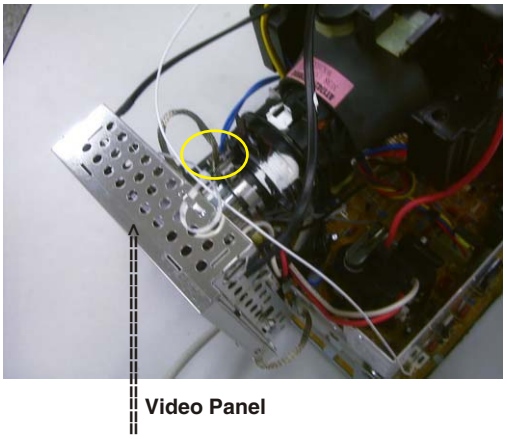


Fig. 5

Mechanical Instructions

4. Main panel with Bottom Tray

- Disconnect the degaussing coil (1113)from Main panel as shown in Fig. 6.
- Remove the video panel from CRT neck.
- Remove the "screw" of I/F cable from Main panel, grounding screw , wire as shown in Fig. 7..
- Disconnect the CRT ground "1703" from Video panel.
- Disconnect the Hi-Pot cap from CRT as shown in Fig. 8..
- Disconnect yoke wire from "1601"(on Main Panel).
- Disconnect concellation connector "1402" (on Main Panel).
- Disconnect connector "1604" and all the wires as shown in Fig. 9.
- Disconnect connector of "1802".
- Remove main panel with bottom tray as shown in Fig. 10 to Fig. 14.

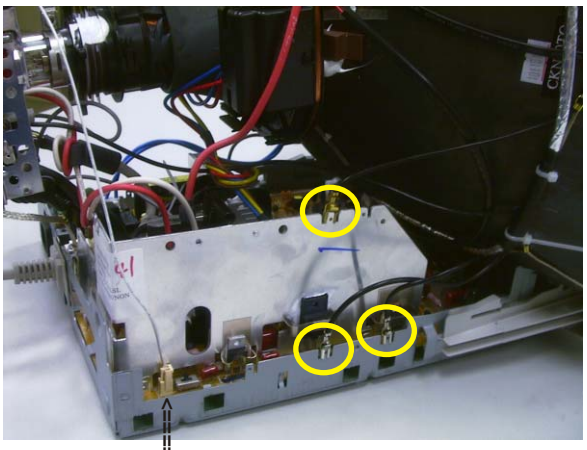


Fig. 9

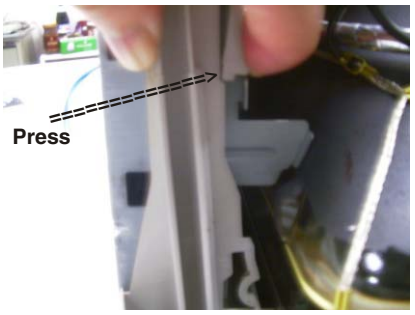


Fig. 10

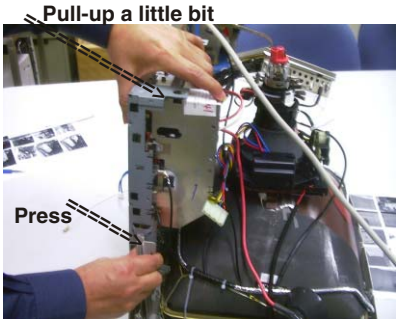


Fig. 11

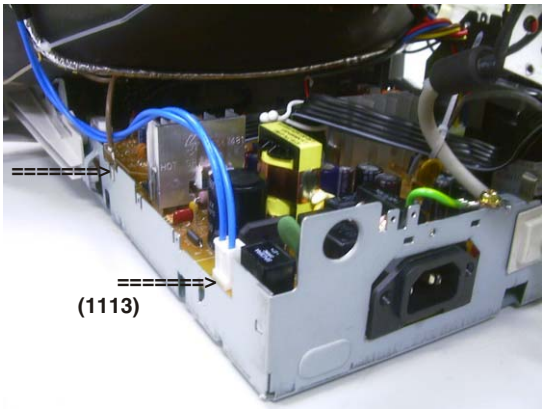


Fig. 6

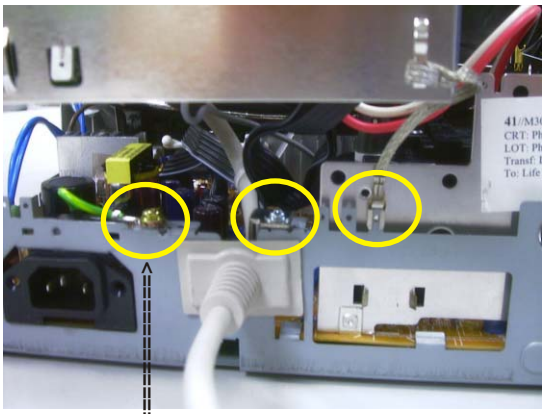


Fig. 7

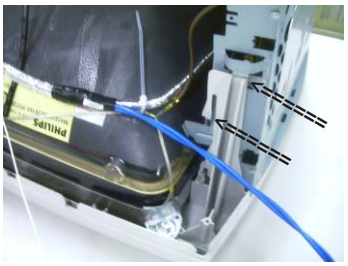


Fig. 12

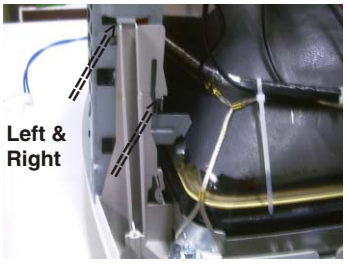


Fig. 13

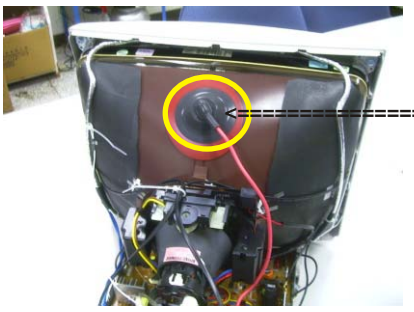


Fig. 8

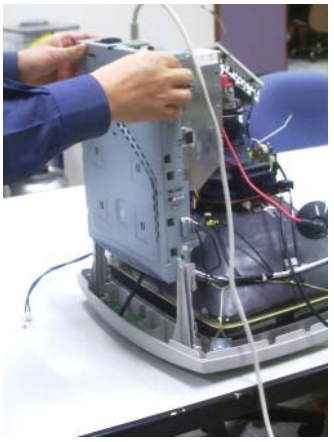


Fig. 14

5. How to remove Main Panel (Chassis)

After remove "Main panel with bottom tray":
- Remove a screw from back of bottom tray as shown in Fig. 15.
- Remove Interface cable from bottom tray as shown in Fig. 16.
- Remove a screw from Main panel as shown in Fig. 16.
- Remove 2 screws from Main panel as shown in Fig. 17.
- Remove a screw from Main panel as shown in Fig. 18.
- Remove Main panel from bottom tray.

6. How to remove Front Control Panel (Chassis)
- Release 3 plastic claws as shown in Fig. 19.
- Remove Front control panel from Front Cabinet.

7. SERVICE POSITION
Reconnect connectors, some wires and panels (chassis), service position can be available for DC/AC measurement as shown in Fig. 22.

Fig. 15

Rear view of Bottom Tray

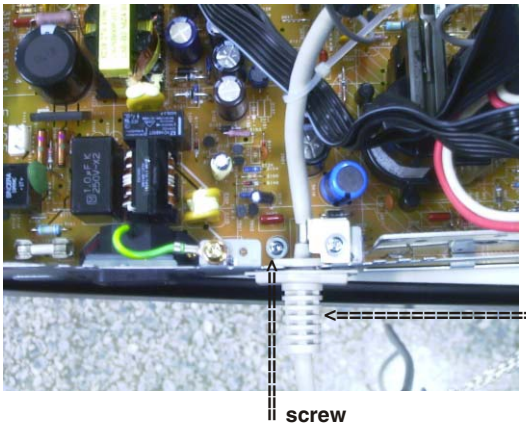


Fig. 16

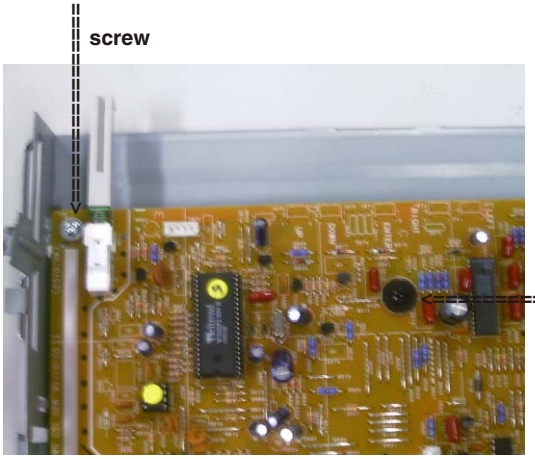


Fig. 17

Fig. 18

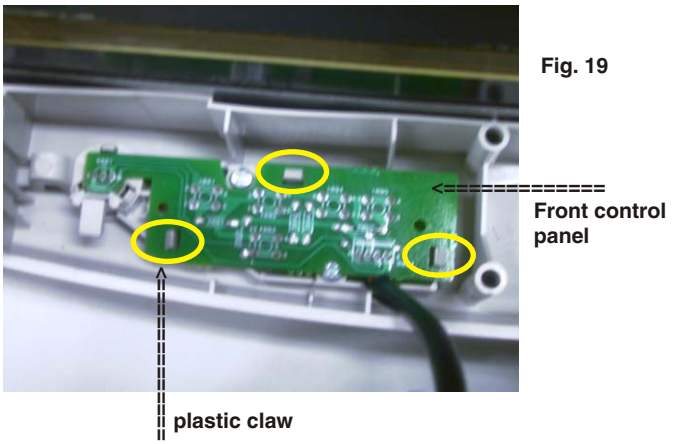


Fig. 19

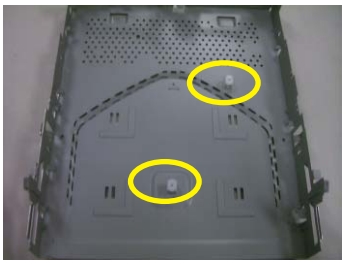


Fig. 20
(plastic on bottom tray)

Fig. 21
(copper track side view on Main panel)

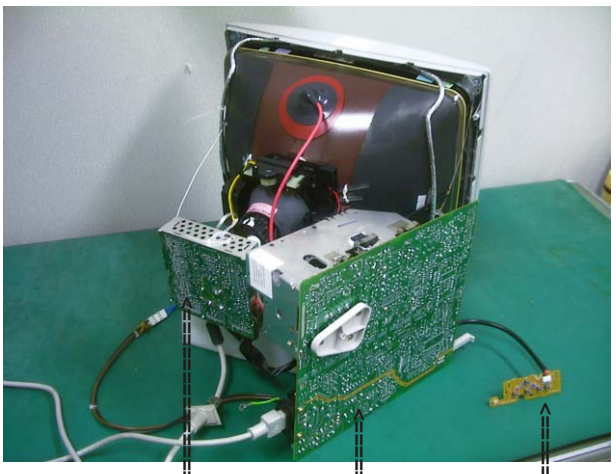
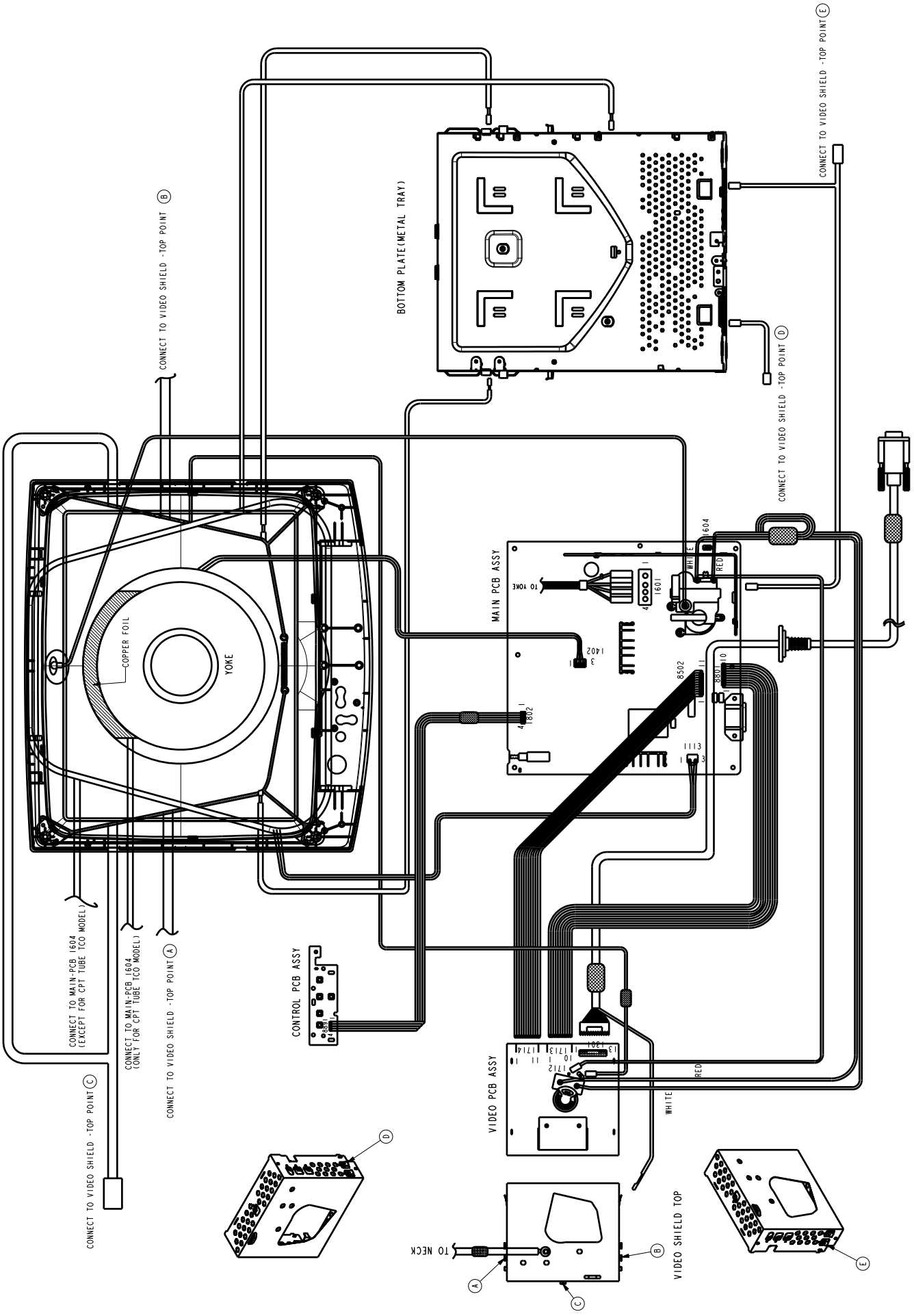


Fig. 22 SERVICE POSITION

Wiring Diagram


BOTTOM PLATE(METAL TRAY)
CONNECT TO VIDEO SHIELD -TOP POINT (B)
CONNECT TO VIDEO SHIELD -TOP POINT (E)
CONNECT TO VIDEO SHIELD -TOP POINT (D)
MAIN PCB ASSY
TO YOKE
COPPER FOIL
YOKE
CONNECT TO MAIN-PCB 1604 (EXCEPT FOR CPT TUBE TCO MODEL)
CONNECT TO MAIN-PCB 1604 (ONLY FOR CPT TUBE TCO MODEL)
CONNECT TO VIDEO SHIELD -TOP POINT (A)
CONTROL PCB ASSY
VIDEO PCB ASSY
WHITE
RED
CONNECT TO VIDEO SHIELD -TOP POINT (C)
TO NECK
VIDEO SHIELD TOP

Hex Data of DDC2B

```
************************************************************************
M32 107E4 70K LG Tube EDID log file
************************************************************************
Vendor/Product Identification
        ID Manufacturer Name  : PHL
        ID Product Code       : 000B (HEX.)
        ID Serial Number      : 4D2 (HEX.)
        Week of Manufacture   : 10
        Year of Manufacture   : 2002
EDID Version, Revision
        Version               : 1
        Revision              : 3
Basic Display Parameters/Features
        Video Input Definition    : Analog Video Input
                                    0.700V/0.000V (0.70Vpp)
                                    without Blank-to-Black Setup
                                    Separate Sync
                                    without Composite Sync
                                    without Sync on Green
                                    no Serration required
        Maximum H Image Size  : 31
        Maximum V Image Size  : 23
        Display Transfer Characteristic : 2.83
                (gamma)
        Feature Support (DPMS): Standby
                                Suspend
                                Active Off
        Display Type          : RGB color display
Color Characteristics
        Red   X coordinate    : 0.62
        Red   Y coordinate    : 0.345
        Green X coordinate    : 0.29
        Green Y coordinate    : 0.61
        Blue  X coordinate    : 0.155
        Blue  Y coordinate    : 0.065
        White X coordinate    : 0.283
        White Y coordinate    : 0.297

Established Timings
        Established Timings I : 720 x 400 @70Hz (IBM,VGA)
                                640 x 480 @60Hz (IBM,VGA)
                                640 x 480 @72Hz (VESA)
                                640 x 480 @75Hz (VESA)
                                800 x 600 @60Hz (VESA)
        Established Timings II: 800 x 600 @72Hz (VESA)
                                800 x 600 @75Hz (VESA)
                                832 x 624 @75Hz (Apple,Mac II)
                                1024 x 768 @60Hz (VESA)
                                1024 x 768 @70Hz (VESA)
                                1024 x 768 @75Hz (VESA)

        Manufacturer's timings :
Standard Timing Identification #1
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #2
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #3
        Horizontal active pixels : 1024
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #4
        Horizontal active pixels: 1280
        Aspect Ratio             : 5:4
        Refresh Rate             : 60

Standard Timing Identification #5
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 100

Standard Timing Identification #6
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 100

Standard Timing Identification #7
        Horizontal active pixels : 1280
        Aspect Ratio             : 4:3
        Refresh Rate             : 60

Standard Timing Identification #8
        Horizontal active pixels : 1152
        Aspect Ratio             : 4:3
        Refresh Rate             : 75

Detailed Timing #1
        Pixel Clock (MHz)        : 25.18
        H Active (pixels)        : 640
        H Blanking (pixels)      : 160
        V Active (lines)         : 350
        V Blanking (lines)       : 99
        H Sync Offset (F Porch) (pixels): 16
        H Sync Pulse Width (pixels): 96
        V Sync Offset (F Porch) (lines) : 37
        V Sync Pulse Width (lines): 2
        H Image Size (mm)        : 306
        V Image Size (mm)        : 230
        H Border (pixels)        : 0
        V Border (lines)         : 0
        Flags                    : Non-interlaced
                                 : Normal Display, No stereo
                                 : Digital Separate sync.
                                 : Negative Vertical Sync.
                                 : Positive Horizontal Sync.

Monitor Descriptor #2
        Serial Number            : TY  123456

Monitor Descriptor #3
        Monitor Name             : PHILIPS 107E4

Monitor Descriptor #4
        Monitor Range Limits
        Min. Vt rate Hz          : 50
        Max. Vt rate Hz          : 160
        Min. Horiz. rate kHz     : 30
        Max. Horiz. rate kHz     : 71
        Max. Supported Pixel     : 110
        No secondary GTF timing formula supported.
Extension Flag                   : 0


************************************************************************
EDID data (128 bytes)
************************************************************************

 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: b7
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 12
Address 78&79 factory code:
Brazil      HC(48h,43h)          Chungli      TY(54h,59h)
Juarez      YA(59h,41h)          Shenzshen    CX(43h,58h)
Suzhou      BZ(42h,5Ah)          Szombathely  HD(48h,44h)
```

Hex Data of DDC2B

```
**********************************************************************
M32 107E4 70K CPT Tube EDID log file
**********************************************************************
Vendor/Product Identification
        ID Manufacturer Name: PHL
        ID Product Code      : 000B (HEX.)
        ID Serial Number     : 4D2 (HEX.)
        Week of Manufacture  : 10
        Year of Manufacture  : 2002
EDID Version, Revision
        Version              : 1
        Revision             : 3
Basic Display Parameters/Features
        Video Input Definition  : Analog Video Input
                                  0.700V/0.000V (0.70Vpp)
                                  without Blank-to-Black Setup
                                  Separate Sync
                                  without Composite Sync
                                  without Sync on Green
                                  no Serration required
        Maximum H Image Size : 31
        Maximum V Image Size : 23
        Display Transfer Characteristic : 2.86
                (gamma)
        Feature Support (DPMS): Standby
                                Suspend
                                Active Off
        Display Type         : RGB color display
Color Characteristics
        Red   X coordinate   : 0.62
        Red   Y coordinate   : 0.345
        Green X coordinate   : 0.29
        Green Y coordinate   : 0.61
        Blue  X coordinate   : 0.155
        Blue  Y coordinate   : 0.065
        White X coordinate   : 0.283
        White Y coordinate   : 0.297
Established Timings
        Established Timings I  : 720 x 400 @70Hz (IBM,VGA)
                                 640 x 480 @60Hz (IBM,VGA)
                                 640 x 480 @72Hz (VESA)
                                 640 x 480 @75Hz (VESA)
                                 800 x 600 @60Hz (VESA)
        Established Timings II : 800 x 600 @72Hz (VESA)
                                 800 x 600 @75Hz (VESA)
                                 832 x 624 @75Hz (Apple,Mac II)
                                 1024 x 768 @60Hz (VESA)
                                 1024 x 768 @70Hz (VESA)
                                 1024 x 768 @75Hz (VESA)
        Manufacturer's timings :
Standard Timing Identification #1
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #2
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #3
        Horizontal active pixels : 1024
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #4
        Horizontal active pixels : 1280
        Aspect Ratio             : 5:4
        Refresh Rate             : 60

Standard Timing Identification #5
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 100

Standard Timing Identification #6
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 100


Standard Timing Identification #7
        Horizontal active pixels : 1280
        Aspect Ratio             : 4:3
        Refresh Rate             : 60

Standard Timing Identification #8
        Horizontal active pixels : 1152
        Aspect Ratio             : 4:3
        Refresh Rate             : 75

Detailed Timing #1
        Pixel Clock (MHz)              : 25.18
        H Active (pixels)              : 640
        H Blanking (pixels)            : 160
        V Active (lines)               : 350
        V Blanking (lines)             : 99
        H Sync Offset (F Porch) (pixels): 16
        H Sync Pulse Width (pixels):  96
        V Sync Offset (F Porch) (lines) : 37
        V Sync Pulse Width (lines)  : 2
        H Image Size (mm)              : 306
        V Image Size (mm)              : 230
        H Border (pixels)              : 0
        V Border (lines)               : 0
        Flags                          : Non-interlaced
                                         : Normal Display, No stereo
                                         : Digital Separate sync.
                                         : Negative Vertical Sync.
                                         : Positive Horizontal Sync.

Monitor Descriptor #2
        Serial Number                  : TY  123456
Monitor Descriptor #3
        Monitor Name                   : PHILIPS 107E4
Monitor Descriptor #4
        Monitor Range Limits
        Min. Vt rate Hz                : 50
        Max. Vt rate Hz                : 160
        Min. Horiz. rate kHz           : 30
        Max. Horiz. rate kHz           : 71
        Max. Supported Pixel           : 110
        No secondary GTF timing formula supported.
Extension Flag                         : 0

Check sum                              : 0F (HEX.)

**********************************************************************
EDID data (128 bytes)
**********************************************************************
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: ba
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 0f
 Address 78&79 factory code:
   Brazil      HC(48h,43h)    Chungli      TY(54h,59h)
   Juarez      YA(59h,41h)    Shenzshen    CX(43h,58h)
   Suzhou      BZ(42h,5Ah)    Szombathely  HD(48h,44h)
```

Hex Data of DDC2B (Continued)

```
**********************************************************************
M32 107E4 70K Philips Tube EDID log file
**********************************************************************
Vendor/Product Identification
        ID Manufacturer Name    : PHL
        ID Product Code         : 000B (HEX.)
        ID Serial Number        : 4D2 (HEX.)
        Week of Manufacture     : 10
        Year of Manufacture     : 2002

EDID Version, Revision
        Version                 : 1
        Revision                : 3
Basic Display Parameters/Features
        Video Input Definition  : Analog Video Input
                                  0.700V/0.000V (0.70Vpp)
                                  without Blank-to-Black Setup
                                  Separate Sync
                                  without Composite Sync
                                  without Sync on Green
                                  no Serration required
        Maximum H Image Size    : 31
        Maximum V Image Size    : 23
        Display Transfer Characteristic : 2.87
                (gamma)
        Feature Support (DPMS)  : Standby
                                  Suspend
                                  Active Off
        Display Type            : RGB color display
Color Characteristics
        Red   X coordinate      : 0.62
        Red   Y coordinate      : 0.345
        Green X coordinate      : 0.29
        Green Y coordinate      : 0.61
        Blue  X coordinate      : 0.155
        Blue  Y coordinate      : 0.065
        White X coordinate      : 0.283
        White Y coordinate      : 0.297

Established Timings
        Established Timings I  : 720 x 400 @ 70Hz (IBM, VGA)
                                 640 x 480 @ 60Hz (IBM, VGA)
                                 640 x 480 @ 72Hz (VESA)
                                 640 x 480 @ 75Hz (VESA)
                                 800 x 600 @ 60Hz (VESA)
        Established Timings II : 800 x 600 @ 72Hz (VESA)
                                 800 x 600 @ 75Hz (VESA)
                                 832 x 624 @ 75Hz (Apple, Mac II)
                                 1024 x 768 @ 60Hz (VESA)
                                 1024 x 768 @ 70Hz (VESA)
                                 1024 x 768 @ 75Hz (VESA)
        Manufacturer's timings  :
Standard Timing Identification #1
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #2
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #3
        Horizontal active pixels : 1024
        Aspect Ratio             : 4:3
        Refresh Rate             : 85

Standard Timing Identification #4
        Horizontal active pixels : 1280
        Aspect Ratio             : 5:4
        Refresh Rate             : 60

Standard Timing Identification #5
        Horizontal active pixels : 640
        Aspect Ratio             : 4:3
        Refresh Rate             : 100

Standard Timing Identification #6
        Horizontal active pixels : 800
        Aspect Ratio             : 4:3
        Refresh Rate             : 100

Standard Timing Identification #7
        Horizontal active pixels : 1280
        Aspect Ratio             : 4:3
        Refresh Rate             : 60

Standard Timing Identification #8
        Horizontal active pixels : 1152
        Aspect Ratio             : 4:3
        Refresh Rate             : 75

Detailed Timing #1
        Pixel Clock (MHz)        : 25.18
        H Active (pixels)        : 640
        H Blanking (pixels)      : 160
        V Active (lines)         : 350
        V Blanking (lines)       : 99
        H Sync Offset (F Porch) (pixels): 16
        H Sync Pulse Width (pixels): 96
        V Sync Offset (F Porch) (lines) : 37
        V Sync Pulse Width (lines): 2
        H Image Size (mm)        : 306
        V Image Size (mm)        : 230
        H Border (pixels)        : 0
        V Border (lines)         : 0
        Flags                    : Non-interlaced
                                 : Normal Display, No stereo
                                 : Digital Separate sync.
                                 : Negative Vertical Sync.
                                 : Positive Horizontal Sync.

Monitor Descriptor #2
        Serial Number            : TY  123456

Monitor Descriptor #3
        Monitor Name             : PHILIPS 107E4

Monitor Descriptor #4
        Monitor Range Limits
        Min. Vt rate Hz          : 50
        Max. Vt rate Hz          : 160
        Min. Horiz. rate kHz     : 30
        Max. Horiz. rate kHz     : 71
        Max. Supported Pixel     : 110
        No secondary GTF timing formula supported.
Extension Flag                   : 0

Check sum                        : 0E (HEX.)
**********************************************************************
EDID data (128 bytes)
**********************************************************************
 0: 00  1: ff  2: ff  3: ff  4: ff  5: ff  6: ff  7: 00
 8: 41  9: 0c 10: 0b 11: 00 12: d2 13: 04 14: 00 15: 00
16: 0a 17: 0c 18: 01 19: 03 20: 68 21: 1f 22: 17 23: bb
24: e8 25: d5 26: f8 27: 9e 28: 58 29: 4a 30: 9c 31: 27
32: 10 33: 48 34: 4c 35: ad 36: ee 37: 00 38: 31 39: 59
40: 45 41: 59 42: 61 43: 59 44: 81 45: 80 46: 31 47: 68
48: 45 49: 68 50: 81 51: 40 52: 71 53: 4f 54: d6 55: 09
56: 80 57: a0 58: 20 59: 5e 60: 63 61: 10 62: 10 63: 60
64: 52 65: 08 66: 32 67: e6 68: 10 69: 00 70: 00 71: 1a
72: 00 73: 00 74: 00 75: ff 76: 00 77: 20 78: 54 79: 59
80: 20 81: 20 82: 31 83: 32 84: 33 85: 34 86: 35 87: 36
88: 0a 89: 20 90: 00 91: 00 92: 00 93: fc 94: 00 95: 50
96: 48 97: 49 98: 4c 99: 49 100: 50 101: 53 102: 20 103: 31
104: 30 105: 37 106: 45 107: 34 108: 00 109: 00 110: 00 111: fd
112: 00 113: 32 114: a0 115: 1e 116: 47 117: 0b 118: 00 119: 0a
120: 20 121: 20 122: 20 123: 20 124: 20 125: 20 126: 00 127: 0e

Address 78&79 factory code:
Brazil     HC(48h,43h)     Chungli      TY(54h,59h)
Juarez     YA(59h,41h)     Shenzshen    CX(43h,58h)
Suzhou     BZ(42h,5Ah)     Szombathely  HD(48h,44h)
```

DDC Instructions

1. General

DDC Data Re-programming

In case the main EEPROM with Software DDC which store all factory settings were replaced because a defect,repaired monitor the serial numbers have to be re-programmed.

It is advised to re-soldered the main EEPROM with Software DDC from the old board onto the new board if circuit board have been replaced, in this case the DDC data does not need to be re-programmed.

Additional information

Additional information about DDC (Display Data Channel) may be obtained from Video Electronics Standards Association (VESA). Extended Display Identification Data(EDID) information may be also obtained from VESA.

DDC EDID structure
For the monitor : Standard Version 3.0
Structure Version 1.2

2. System and equipment requirements

1. An i486 (or above) personal computer or compatible.
2. Microsoft operation system Windows 95/98.
3. EDID301.EXE program (3138 106 10103) shown as Fig. 1
4. Software DDC Alignment kits (4822 310 11184) shown as Fig. 2.

The kit contents: a. Alignment box x1
b. Printer cable x1
c. D-Sub cable x1

Note: The EDID301.EXE (Release Version 1.58, 20000818)is a windows-based program, which cannot be run in MS-DOS.

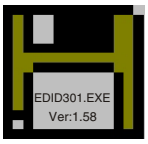


Figure 1 Diskette with EDID301.EXE

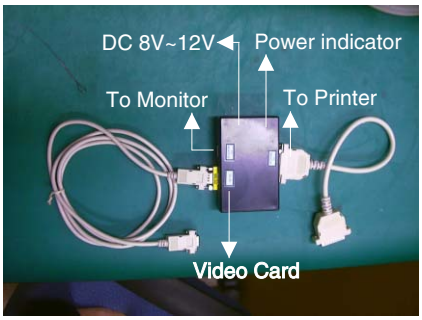
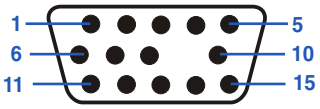


Fig. 2 Alignment Kits

3. Pin assignment

A. 15-pin D-Sub Connector

The 15-pin D-sub connector (male) of the signal cable on the 3rd row for DDC feature :



Pin No.	Assignment	Pin No.	Assignment
1	Red video input	9	No pin
2	Green video input	10	Sync. Ground
3	Blue video input	11	Ground
4	Ground	12	Bi-directional data(SDA)
5	for selftest(PC ground)	13	H.Sync
6	Red video ground	14	V.Sync(VCLK)
7	Green video ground	15	Data clock line(SCL)
8	Blue video ground		

DDC Instructions (Continued)

4. Configuration and procedure

There is no Hardware DDC (DDC IC) anymore. Main EEPROM stores all factory settings and DDC data (EDID code) which is so called Software DDC. The following section describes the connection and procedure for Software DDC application. The main EEPROM can be re-probrammed by enabling "factory memory data write" function on the DDC program (EDID301.EXE).

***** INITIALIZE ALIGNMENT BOX *****

In order to avoid that monitor entering power saving mode due to sync will cut off by alignment box, it is necessary to initialize alignment box before re-programming DDC Data. Following steps show you the procedures and connection.

Step 1: Supply 8~12V DC power source to the Alignment box by plugging a DC power cord or using batteries.
Step 2: Connecting printer cable and video cable of monitor as shown in Fig.3.

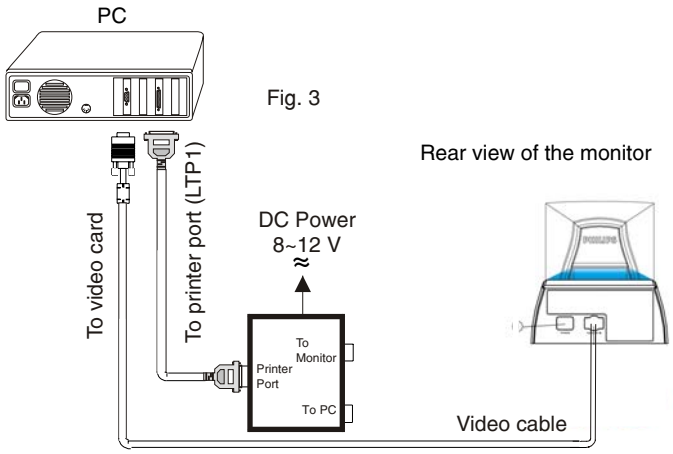


Fig. 3

Step 3: Installation of EDID301.EXE

Method 1: Start on DDC program

Start Microsoft Windows.
1. Insert the disk containing EDID301.EXE program into floppy disk drive.
2. Click Start , choose Run at start menu of Windows 95/98 as shown in Fig. 4.

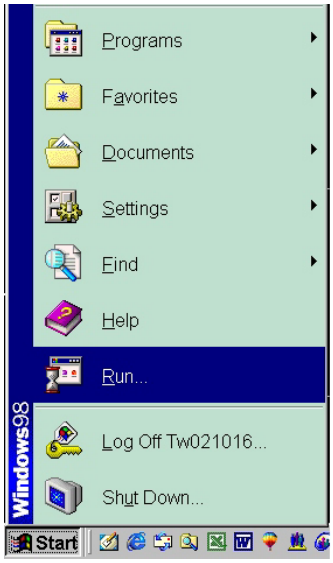


Fig. 4

3. At the submenu, type the letter of your computer's floppy disk drive followed by :EDID301 (for example, A:\EDID301, as shown in Fig. 5).

Fig. 5

4. Click **OK** button. The main menu appears (as shown in Fig. 6).
This is for initialize alignment box.

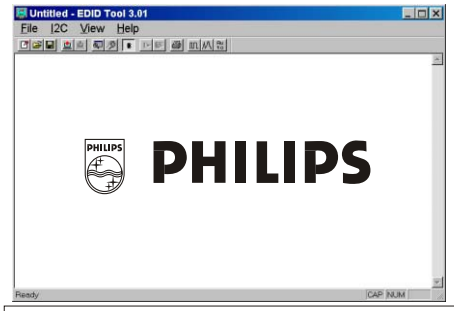


Fig. 6

Note 1: If the connection is improper, you will see the following error message (as shown in Fig. 7) before entering the main menu. Meanwhile, the (read EDID) function will be disable. At this time, please make sure all cables are connected correctly and fixedly, and the procedure has been performed properly.

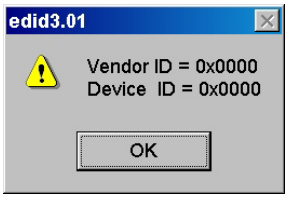


Fig. 7

Method 2: After create a shortcut of EDID301.EXE
: Double click EDID301 icon (as shown in Fig. 8) which is on the screen of Windows Wallpaper.
Bring up main menu of EDID301 as shown in Fig. 9.
This is for initialize alignment box.

Fig. 8

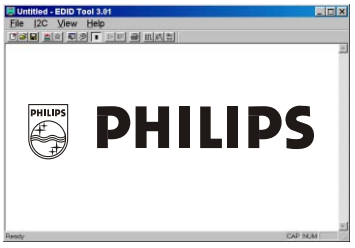
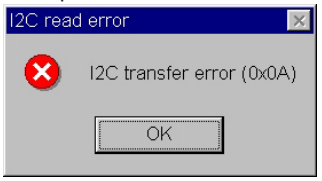


Fig. 9

Note 2: During the loading, EDID301 will verify the EDID data which just loaded from monitor before proceed any further function, once the data structure of EDID can not be recognized, the following error message will appear on the screen as below. Please confirm following steps to avoid this message.
1. The data structure of EDID was incorrect.
2. DDC IC that you are trying to load data is empty.
3. Wrong communication channel has set at configuration setup windows.
4. Cables loosed or poor contact of connection.



DDC Instructions (Continued)

Re-programming EEPROM (Software DDC)

Step 1: After initialize alignment box, connecting all cables and box as shown in Fig. 10

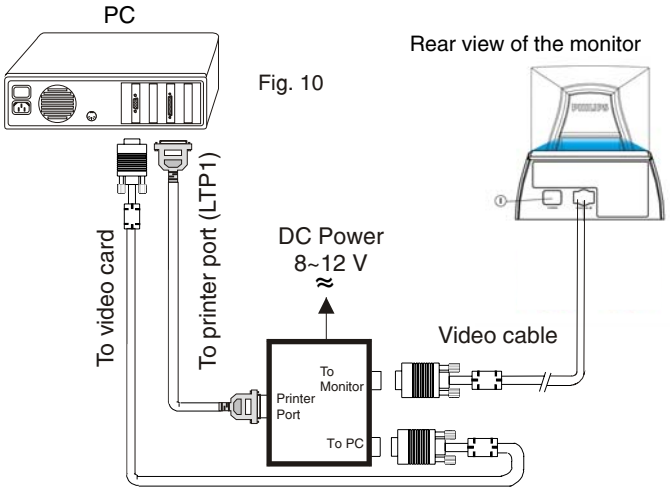


Fig. 10

Step 2: Read DDC data from monitor

1-1 Click the left key of Mouse, or hit any key on the keyboard, then the characters disappear from the screen.
1-2 Click icon as shown if Fig. 11 from the tool bar to bring up the "Configuration Setup" windows as shown in Fig. 12.

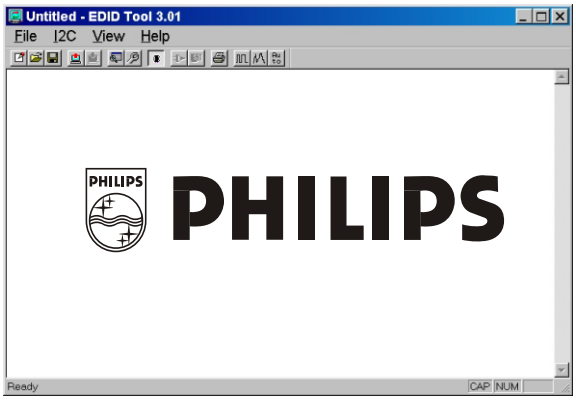


Fig. 11

2. Select the DDC2B as the communication channel. Select "**Enable**" & fill out "**F0**" for Mapped EDID page address as shown in Fig. 12.

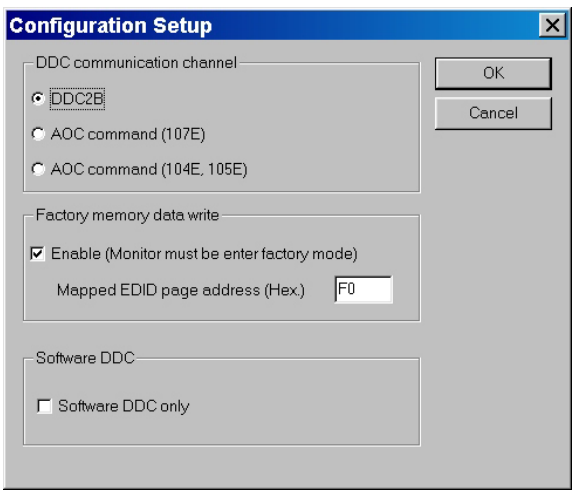


Fig. 12

3. Click OK button to confirm your selection.

4. Click icon (Read EDID function) to read DDC EDID data from monitor. The EDID codes will display on screen as shown in Fig. 13.

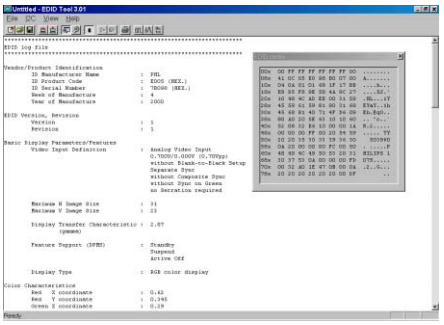


Fig. 13

Step 3: Modify DDC data (verify EDID version, week, year)

1. Click (new function) icon from the tool bar, bring up Step 1 of 9 as shown in Fig. 14 .
EDID301 DDC application provides the function selection and text change (select & fill out) from Step 1 to Step 9.

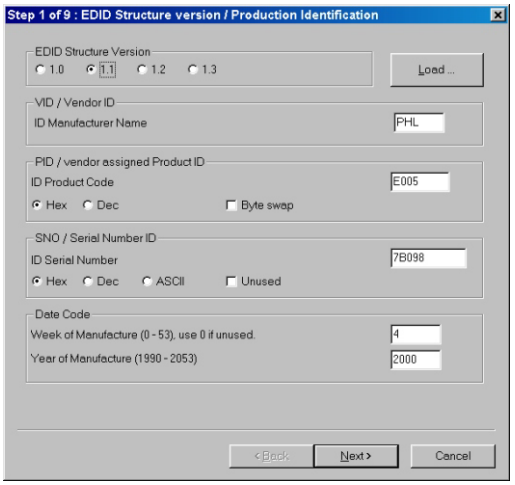


Fig. 14

Step 4: Modify DDC data (Monitor Serial No.)

1. Click **Next** till the Step 7 of 9 window appears as shown in Fig. 15.
2. Fill out the new Serial No. (for example, TY 503960, TY 123456).
3. Click **Next** till the last step window appears, then click **Finish** to exit the Step window.

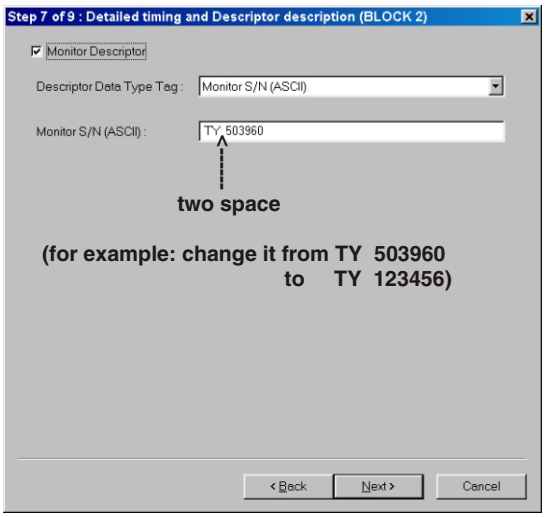
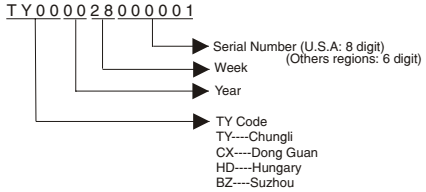

Step 7 of 9 : Detailed timing and Descriptor description (BLOCK 2)
Monitor Descriptor
Descriptor Data Type Tag :
Monitor S/N (ASCII)
Monitor S/N (ASCII) :
TY 503960
two space
(for example: change it from TY 503960
to TY 123456)
< Back
Next >
Cancel

Fig. 15

Definition of Serial Number (barcode format)



DDC Instructions (Continued)

Step 5: **Configuration Setup & Enter Factory Mode ** for "write EDID data"

1. Click icon from the tool bar to bring up the Configuration Setup windows again. Then, select "Software DDC only" as shown in Fig. 16. Click "OK".

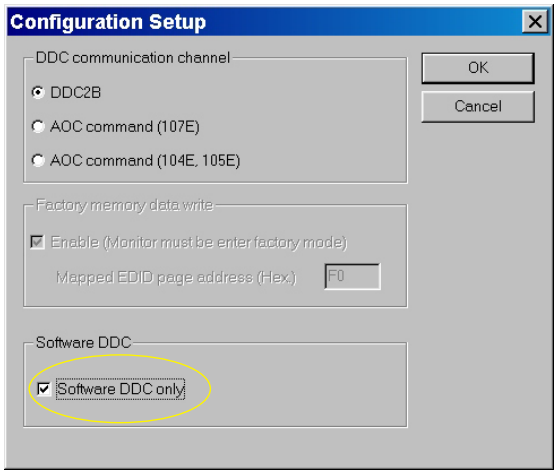


Fig. 16

If you do not select "Software DDC only", when you execute "write EDID", it will bring up an error message as below.

To access factory mode

1. Turn off monitor (don't turn off PC)
2. Press " " and " " simultaneously on the front control panel,then press " ",wait till the OSD menu with characters M30 107S P V0.82 20010207 (below OSD menu)" come on the screen of monitor.

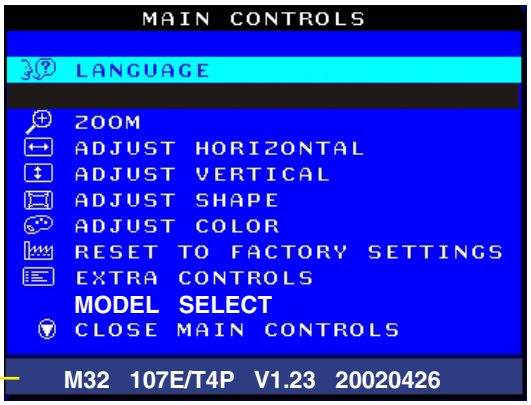


Fig. 17

If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.

If you do not access "Factory mode", when you execute "write EDID", it will bring up an error message as below.

Step 6: Write DDC data

1. Click (Write EDID) icon from the tool bar to write DDC data. Bring up "Writing 0%~100%, ready" a progressing bar on the left down corner.
2. Click (Read EDID) to confirm it.

Step 7: Confirm Serial Number in User Mode

1. Press the button to turn off the monitor. Press the button again to turn on the monitor.
2. Press the button to bring up the OSD Main Menu.
3. Press the button to select Extra Controls, press the button to confirm your selection.
4. Confirm the Serial Number "123456" is updated as shown in Fig. 18.

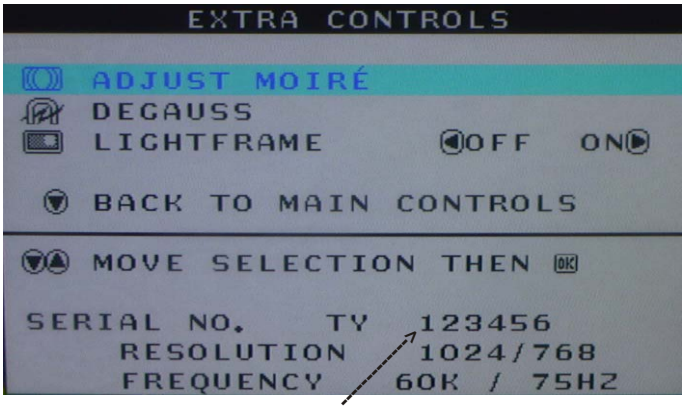


Fig. 18

Step 8: Save DDC data

Sometimes, you may need to save DDC data as a text file for using in other IC chip. To save DDC data, follow the steps below:

1. Click (Save) icon (or click "file"-> "save as") from the tool bar and give a file name as shown in Fig. 19.
   The file type is EDID301 file (*.ddc) which can be open in WordPad. By using WordPad, the texts of DDC data & table (128 bytes, hex code) can be modified. If DDC TEXTS & HEX Table are completely correct, it can be saved as .ddc flie to re-load it into EEPROM for DDC Data application.

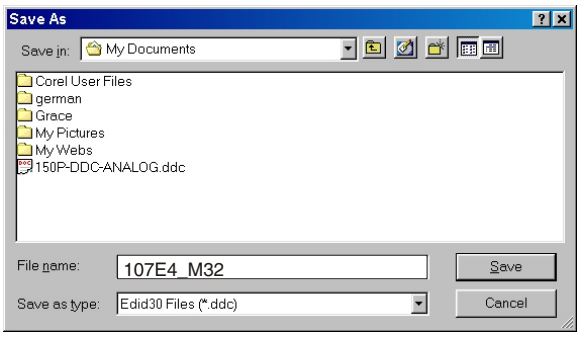


Fig. 19

2. Click **Save**.

DDC Instructions (Continued)

Step 9: Load DDC data

1. Click from the tool bar.
2. Select the file you want to open as shown in Fig. 20.
3. Click **Open**.
4. Access "Factory Mode" and enable "Software DDC only" as shown in Fig. 17 & Fig. 16.
5. Write EDID (click).

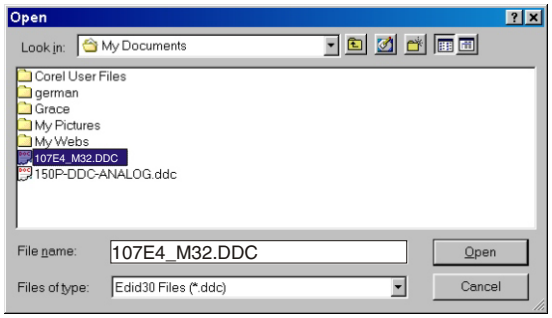


Fig. 20

Step 10: Exit DDC program

Pull down the File menu and select Exit as shown in Fig. 21.
(EDID Tool 3.01)

Fig. 21

Note1 : In User Mode: Read DDC data only

Before read EDID code, please confirm that the **Software DDC only was disabled** as shown in Fig. 22.

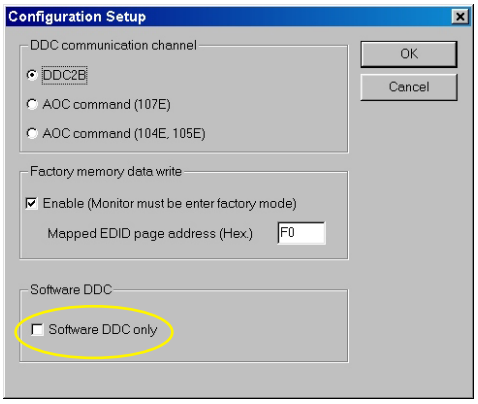


Fig. 22

If you do not disable "Software DDC only", when you execute "read EDID", it will bring up an error message as below.

Note 2 : In Factory Mode: Read/Write DDC data

Before Read/Write EDID code, please confirm that the **Software DDC only was enabled** as shown in Fig. 23.

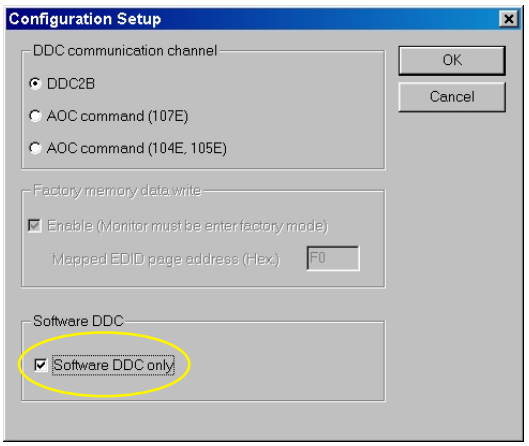


Fig. 23

Electrical Adjustments

0. General

When carry-out the electrical settings in many cases a video signal must be applied to the monitor. A computer with :

- ATI GPT-1600 (4822 397 10065), Mach 64 (up to 107kHz)

are used as the video signal source. The signal patterns are selected from the "service test software" package, see user guide 4822 727 21046 (GPT-1600).

0.1 This monitor has **8 factory-preset modes** as below.

720 x 400 31.5 kHz/70 Hz 1024 x 768 68.7 kHz/85 Hz
640 x 480 31.5 kHz/60 Hz
640 x 480 43.3 kHz/85 Hz
800 x 600 46.9 kHz/75 Hz
800 x 600 53.6 kHz/85 Hz
1024x768 60.0 kHz/75 Hz
1280 x 1024 64.0kHz/60Hz

14 factory-preload modes as below

640 x 350 31.5 kHz/70 Hz	800 x 600 48.1 kHz/72 Hz
640 x 350 37.9 kHz/85 Hz	800 x 600 63.9 kHz/100 Hz
640 x 480 37.5 kHz/75 Hz	832 x 624 49.7 kHz/75 Hz
640 x 480 37.9 kHz/72.8 Hz	1024 x 768 48.4 kHz/60 Hz
640 x 480 50.6 kHz/100 Hz	1024 x 768 56.5 kHz/70 Hz
720 x 400 37.9 kHz/85 Hz	1152 x 864 67.5 kHz/75 Hz
800 x 600 37.90kHz/60Hz	1280 x 960 60.0 kHz/60 Hz

1. With normal VGA card:
If not using the ATI card during repair or alignment, The service engineer also can use this service test software adapting with normal standard VGA adaptor and using standard VGA mode 640 x 480, 31.5 kHz/60 Hz (only) as signal source.

2. AC/DC Measurement:
The measurements for AC waveform and DC figure is based on 640 x 480 31.5 kHz/60 Hz resolution mode with test pattern "gray scale". Power input: 110V AC

3.Monitor the following auxiliary voltages.

SOURCE ACROSS 7114 Pin and GRN	+5 V	+/- 0.25 VDC
SOURCE ACROSS C2155	+6.1 V	+/- 0.5 VDC.
SOURCE ACROSS C2153	+12.2V	+/- 1.0 VDC.
SOURCE ACROSS C2154	- 12.2V	+/- 1.0 VDC.
SOURCE ACROSS C2151	+94.0V	+/- 1.5 VDC.
SOURCE ACROSS C2609	- 182 V	+/- 10.0 VDC.
SOURCE ACROSS C2152(+ to Gnd)	+190.0V	+/-2.0 VDC.

4. General conditions for alignment

4.1 During all alignments, supply a distortion free AC mains voltage to set via an isolating transformer with low internal impedance.
4.2 Align in pre-warmed condition, at least 30 minutes warm-up with nominal picture brightness.
4.3 Purity, geometry and subsequent alignments should be carried out in magnetic cage with correct magnetic field.

Northern hemisphere : H=0, V=450 mG, Z=0
Southern hemisphere : H=0, V=-500 mG, Z=0
Equatorial Support : H=0, V=0 mG, Z=0

4.4 All voltages are to be measured or applied with respect to ground.
Note: Do not use heatsink as ground.
4.5 Adjust brightness controls to center position except for contrast control which should be set to MAX.

5. To access factory mode

5.1 Turn off monitor (don't turn off PC)
5.2 Press " " and " " simultaneously on the front control panel,then press " ",wait till the OSD menu with characters M32 107E/T4P V1.23 20020426 (below OSD menu)" come on the screen of monitor.

5.3 If OSD menu disappears on the screen of monitor, press " " again (anytime), then the OSD menu comes on the screen again.
5.4 Using " " : to select OSD menu.
5.5 Using " " : to increase or decrease the setting.
5.6 Using " " to access/confirm the selection.

To leave factory mode

5.7 After alignment of factory mode, turn off monitor (if you do not turn off monitor, the OSD menu is always at the factory mode), then turn on monitor again (at this moment, the OSD menu goes back to user mode).

6. Picture geometry setting

- Apply a video signal with cross-hatch pattern.
- Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode.
- Set contrast control at Max. position, and brightness control in the mid-point.

6.4 Alignment of horizontal geometry and vertical geometry
6.4.1 Adjust the H-width to 306 mm
6.4.2 Adjust the H-phase to center position.
6.4.3 Adjust V-size to 230mm.
6.4.4 Adjust V-Position to center.
Adjust/Trapezoid/pincushion/balance pincushion/paralleogram
6.4.5 Adjust picture tilt via I^2C BUS for correct top/bottom lines.
6.4.6 Adjust the top and bottom corner by I^2C to get optimum corner geometry.
6.4.7 Adjust the parallelogram by I^2C BUS to get optimum vertical line.
6.4.8 Adjust the balance pincushion by I^2C BUS to get optimum vertical line.
6.4.9 Adjust the trapezoid to get optimum vertical line.

6.5 Adjust size/centering/trapezium/pincushion/parallelogram of all other preset modes via I^2C bus.
(to repeat from step 6.4.1 to step 6.4.9)

Electrical Adjustments (Continued)

Go to cover page

7. Alignment of Vg2 cut-off point, white tracking

Equipment : 1. Video Test Generator-801GC (Quantum Data)
2. Color-analyzer (Minolta CA-100)
VG2 [(screen), at the bottom of the L.O.T.].

7.1 Apply a video signal in the 1024 x 768 with 68.7 kHz/85 Hz mode, select the "full white pattern" (sizes 306 x 230 mm).

* Use color-analyzer (Minolta CA-100) to adjust R/G/B cutoff and gain.

OSD R/G/B cut-off and R/G/B gain can be accessed (for Philips CRT), with initial data:

9300 °K
R cutoff = 50%, R gain = 73% (I^2C)
G cutoff = 50%, G gain = 73% (I^2C)
B cutoff = 50%, B gain = 73% (I^2C)
6500 °K
R cutoff = 50%, R gain = 71% (I^2C)
G cutoff = 50%, G gain = 71% (I^2C)
B cutoff = 50%, B gain = 71% (I^2C)

Brightness = 50%, Sub-Contrast = 86%, ABL = 63% (I^2C)

Step 1: To access factory mode

- Turn off monitor (don't turn off PC)
- Press " ◀▶ and " ⏻ " simultaneously on the front control panel, then press " OSD ", wait till the OSD menu with characters M32 107E/T4P V1.23 20020426 (below OSD menu)" comes on the screen of monitor as shown in Fig. 2.1.

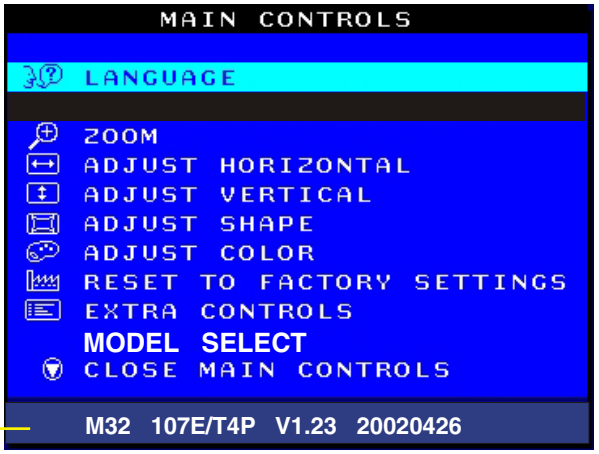


Fig. 2.1

- If OSD menu disappears on the screen of monitor, press " OSD " again (anytime), then the OSD menu comes on the screen again.
- Using " ▼ " to select M32 107E/T4P V1.23 20020426.
- Press " OSD " button to access/confirm the selection.
  Bring up the "function adjustment" as shown in Fig. 2.2.
- Press " ▼ " or " ▲ " button for function selection as shown in Fig. 2.2.
- Press " OSD " button to access/confirm each item selection (The cursor indicator will be changed from yellow colour to red colour.)
- Using " ▶ " or " ◀ " : to increase or decrease the value.

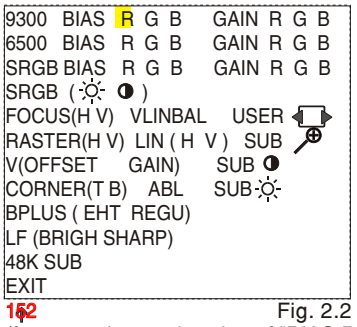

9300 BIAS R G B GAIN R G B
6500 BIAS R G B GAIN R G B
SRGB BIAS R G B GAIN R G B
SRGB (☼ ◑)
FOCUS(H V) VLINBAL USER
RASTER(H V) LIN (H V) SUB
V(OFFSET GAIN) SUB ◑
CORNER(T B) ABL SUB ☼
BPLUS (EHT REGU)
LF (BRIGH SHARP)
48K SUB
EXIT
152

Fig. 2.2
(for example: 152 is value of "BIAS R")

(for ref. 152, 38,71,242,202,226)
(for ref. 160,41,75,238,174,153)
(for ref. 0,120,95,70)
(for ref. 127,127,255,41,80)
(for ref. 170,170,220)
(for ref. 70,65,152,255)
(for ref. 183,152)
(for ref. 96,96)
(for ref. 4,4)
(for ref. 230)

BIAS R G B : R(red) G(green) B(blue) cutoff
GAIN R G B : R(red) G(green) B(blue) gain
V FOCUS : Vertical Focus
VLIN BAL : Vertical Linearity Balance
USER ◀▶ : Horizontal size range
RASTER H: Horizontal DC (raster) Shift
RASTER V: Vertical DC (raster) Shift
HLIN : Horizontal Linearity
V LIN : Vertical Linearity
SUB 🔧 : Zoom range
SUB ◑ : Sub Contrast
SUB ☼ : Sub Brigntness
V OFFSET : Vertical offset
V GAIN : Vertical Gain
ABL : Auto Beam Limit
T CORNER: Corner Correctionof TOP
B CORNER: Corner Correctionof BOTTOM
H (EHT REGU): Horizontal Extensive High Tension
LF : Light Frame
48K SUB : H-Size limit

7.2 Connect the video input, set brightness control at center, and contrast control at maximum

7.3
set R,G,B cut-off at 127 9300k and 6500K(EEPROM preload value)
R,G,B gain at 185 9300k and
180 6500K(EEPROM preload value)
ABL at 160 9300k (EEPROM preload value)
SUB-CON at 220 9300k (EEPROM preload value)

7.4 Adjust 9300K color:
With color analyzer CA100,
set R,G,B cut-off x=0.283, y=0.297, Y=0.10

7.5 Set R,G,B gain Y=41+/- 1FL, x=0.283, y=0.297

7.6 Repeat 7.4,7.5 until RGB three guns get x=0.283, y=0.297, readings on low Y=0.10+/-0.05FL and high Y=41+/-1FL brightness of 9300.

7.7 Adjust 6500K color:
With color analyzer CA100,
set R,G,B cut-off x=0.313, y=0.329, Y=0.10

7.8 Set R,G,B gain Y=36+/- 1FL, x=0.313, y=0.329

7.9 Repeat 7.7,7.8 until RGB three guns get x=0.313, y=0.329, readings on low Y=0.10+/-0.05FL and high Y=36+/-1FL brightness of 6500.

7.10 Adjust SUB-CON to get Y=41+/-1FL.

7.11 Apply full white pattern of 9300 mode, adjust ABL to reach 30 +/- 1FL(at 9300 high brightness of R/G/B gain, contrast at 100%)

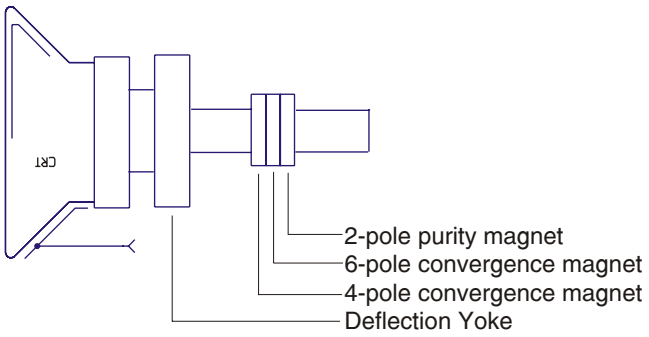
Electrical Adjustments (Continued)

8. Focus adjustment

Apply a signal of " @ " character. at 68.7 kHz/85 Hz mode set the brightness to mid-position , contrast to max - position and adjust the focus for optimal sharpness in the area within 2/3 from the screen center.

9. Loading DDC code

The DDC HEX data should be written into the EEPROM (7803) by EDID301.EXE Program(3138 106 10103) and software DDC Alignment kits (4822 310 11184).



10. Purity adjustment

- Make sure the monitor is not exposed to any external magnetic field.
- Produce a full red pattern on the screen, adjust the purity magnet rings on the PCM assy (on CRT) to obtain a complete field of the color red. This is done by moving the two tabs (2-pole) in such a manner that they advance in an opposite direction but at the same time to obtain the same angle between the two tabs, which should be approximately 180 degree.
- Check by full green pattern and full blue pattern again to observe their respective color purity.

11. Static convergence

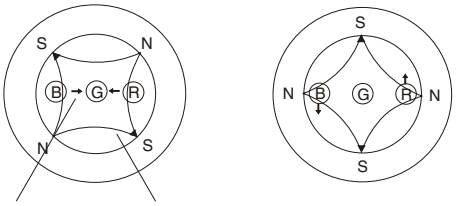
Introduction

Slight deviation in the static convergence can be corrected by using two permanent pairs of magnets which are fitted around the neck of the CRT. These are the 4-pole magnet and the 6-pole magnet.
The 4-pole magnet move the outermost electron beams (R and B) parallel in the opposite direction from the other. The 6-pole magnet moves the outermost electron beam (R, B and G) parallel in the opposite direction from the other.
The magnetic field of the above magnets do not affect the center of the CRT neck.

Setting

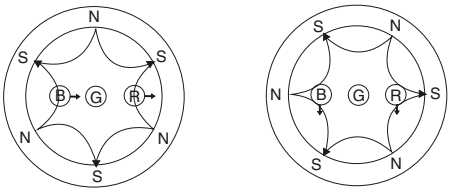
- Before the static convergence setting can be made, the monitor must be switched on for 30 minutes.
- The focus setting must be made correctly.
- Signal: 640 * 480, 31.5 kHz/60 Hz mode.
- Set the tabs of the 4-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R and B electron beams.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- Pole magnet again.
- Set the tabs of the 6-pole magnet in the neutral position. This is when the tabs are opposite one another. In this position the magnets do not affect the deflection of the R, B, and G electron beams.
- First set the 4-pole magnet optimally.
- Then set the 6-pole magnet optimally.
- If the convergence is not now optimal, then adjust to the optimal setting with the 4-pole magnet and then with the 6- pole magnet again.

4-pole — Beam motion producced by the 4-pole convergence magnet



Beam displacement direction — Magnetic flux lines

6-pole — Beam motion producced by the 6- pole convergence magnet



Safety test requirements

All units that are returned for service or repair must pass the original manufactures safety tests. Safety testing requires both **Hipot** and **Ground Continuity** testing.

HI-POT TEST INSTRUCTION

1. Application requirements

1.1 All mains operated products must pass the Hi-Pot test as described in this instruction.

1.2 This test must be performed again after the covers have been refitted following the repair, inspection or modification of the product.

2. Test method

2.1 Connecting conditions

2.1.1 The test specified must be applied between the parallel-blade plug of the mainscord and all accessible metal parts of the product.

2.1.2 Before carrying out the test, reliable conductive connections must be ensured and thereafter be maintained throughout the test period.

2.1.3 The mains switch(es) must be in the "ON" position.

2.2 Test Requirements

All products should be HiPot and Ground Continuity tested as follows:

Condition	HiPot Test for products where the mains input range is Full range(or 220V AC)	HiPot Test for products where the mains input is 110V AC(USA type)	Ground Continuity Test requirement
Test voltage	2820VDC (2000VAC)	1700VDC (1200VAC)	Test current: 25A,AC Test time: 3 seconds(min.) Resistance required: <=0.09+R ohm, R is the resistance of the mains cord.
Test time (min.)	3 seconds	1 second	
Trip current (Tester)	set at 100 uA for Max. limitation; set at 0.1 uA for Min. limitation	5 mA	
Ramp time	set at 2 seconds		

2.2.1 The test with AC voltage is only for production purpose, Service center shall use DC voltage.

2.2.2 The minimum test duration for Quality Control Inspector must be 1 minute.No breakdown during the test.

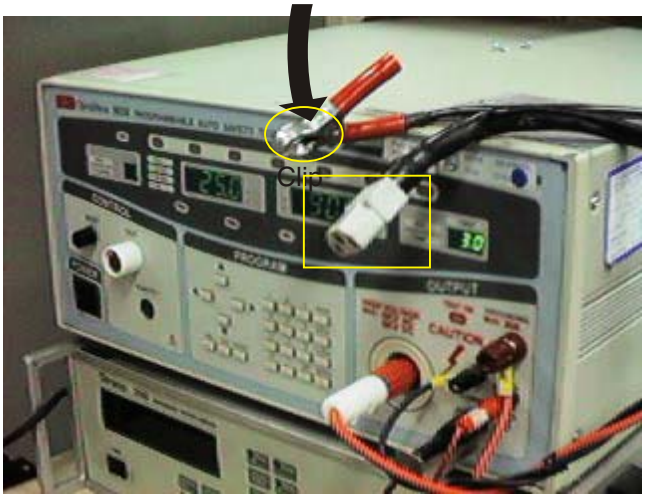
2.2.3 The test voltage must be maintained within the specified voltage + 5%.

2.2.4 The grounding blade or pin of mains plug must be conducted with accessible metal parts.

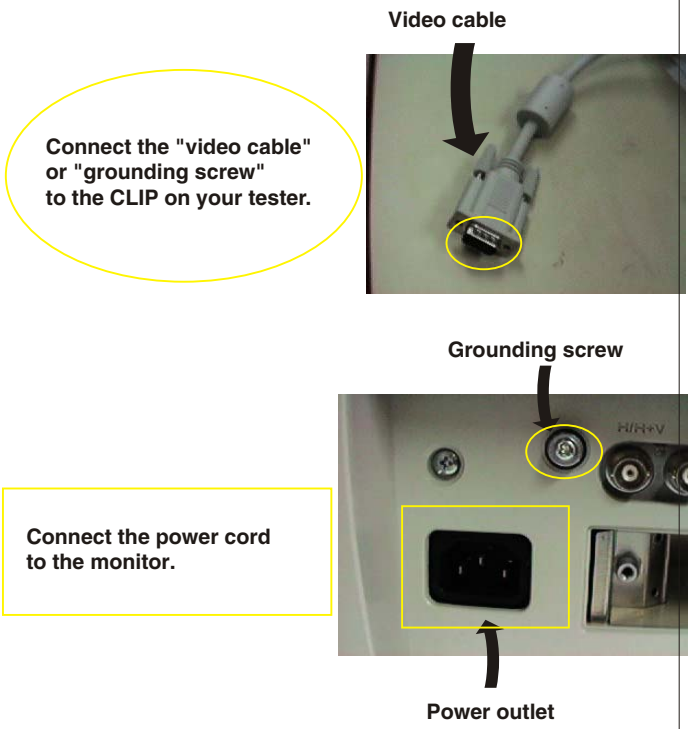
3. Equipments and Connection

3.1. Equipments
For example :
- ChenHwa 9032 PROGRAMMABLE AUTO SAFETY TESTER
- ChenHwa 510B Digital Grounding Continuity Tester
- ChenHwa 901 (AC Hi-pot test), 902 (AC, DC Hi-pot test) Withstanding Tester

3.2. Connection
* Turn on the power switch of monitor before Hipot and Ground Continuity testing.



(ChenHwa 9032 tester)

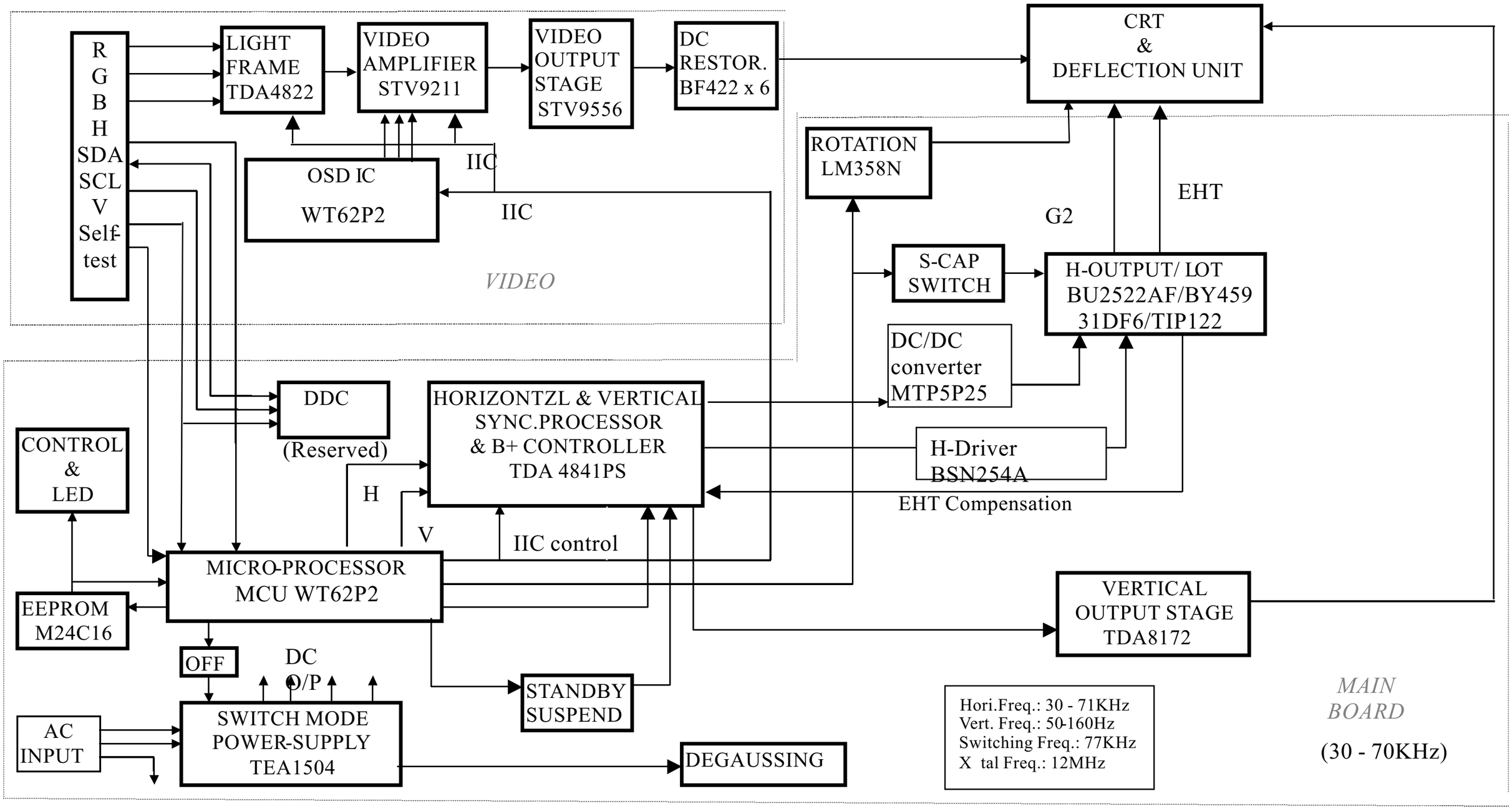

Video cable
Connect the "video cable" or "grounding screw" to the CLIP on your tester.
Grounding screw
Connect the power cord to the monitor.
Power outlet

(Rear view of monitor)

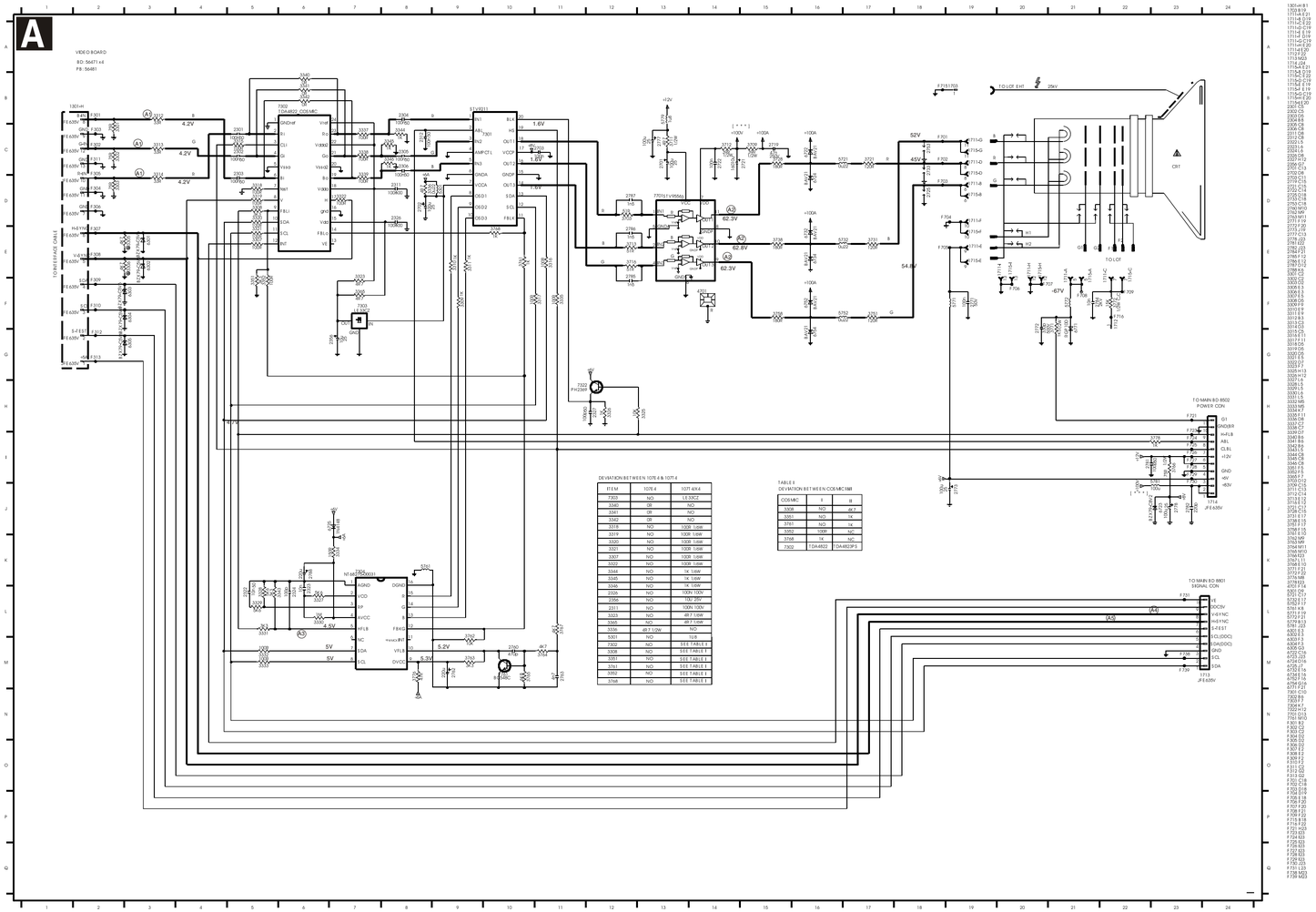
4. Recording

Hipot and Ground Continuity testing records have to be kept for a period of 10 years.

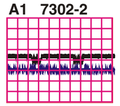
FUNCTION BLOCK OF COCA+ M32 107E4 GS_3



Video Panel Schematic diagram

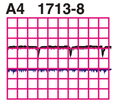

A
VIDEO BOARD
8D: 5647T-4
PB: 5681
TO MAIN BD 8502
POWER CON
TO MAIN BD 8801
SIGNAL CON
TO LOF EHT
TO LOT
CRT
DEVIATION BETWEEN 107E-6 & 107T-4
ITEM | 107E-4 | 107T-6/X-6
7303 | NO | LE 33CZ
3340 | 0R | NO
3341 | 0R | NO
3342 | 0R | NO
3318 | NO | 100R 1/4W
3319 | NO | 100R 1/4W
3320 | NO | 100R 1/4W
3321 | NO | 100R 1/4W
3307 | NO | 100R 1/4W
3322 | NO | 100R 1/4W
3344 | NO | 1K 1/4W
3345 | NO | 1K 1/4W
3346 | NO | 1K 1/4W
3330 | NO | 100V 100V
2350 | NO | 100 25V
2311 | NO | 100V 100V
3323 | NO | 49.7 1/4W
3335 | NO | 49.7 1/4W
3336 | 49.7 1/2W | NO
5301 | NO | 10R
7302 | NO | SEE TABLE I
3308 | NO | SEE TABLE I
3351 | NO | SEE TABLE I
3761 | NO | SEE TABLE I
3352 | NO | SEE TABLE I
3748 | NO | SEE TABLE I
TABLE I
DEVIATION BETWEEN CDS MICNR
CDS MIC | 7 | 11
3309 | NO | 4K7
3351 | NO | 1K
3761 | NO | 1K
3352 | 100R | NC
3748 | 1K | NC
7302 | TDA4822 | DA4823P3

A1 7302-2



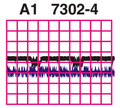
1 V/div AC
5 mS/div

A4 1713-8



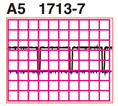
2 V/div AC
5 mS/div

A1 7302-4



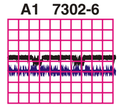
1 V/div AC
5 mS/div

A5 1713-7



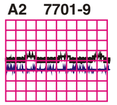
2 V/div AC
5 uS/div

A1 7302-6



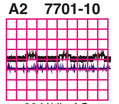
1 V/div AC
5 mS/div

A2 7701-9



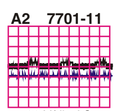
20 V/div AC
5 mS/div

A2 7701-10



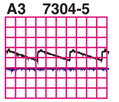
20 V/div AC
5 mS/div

A2 7701-11



20 V/div AC
5 mS/div

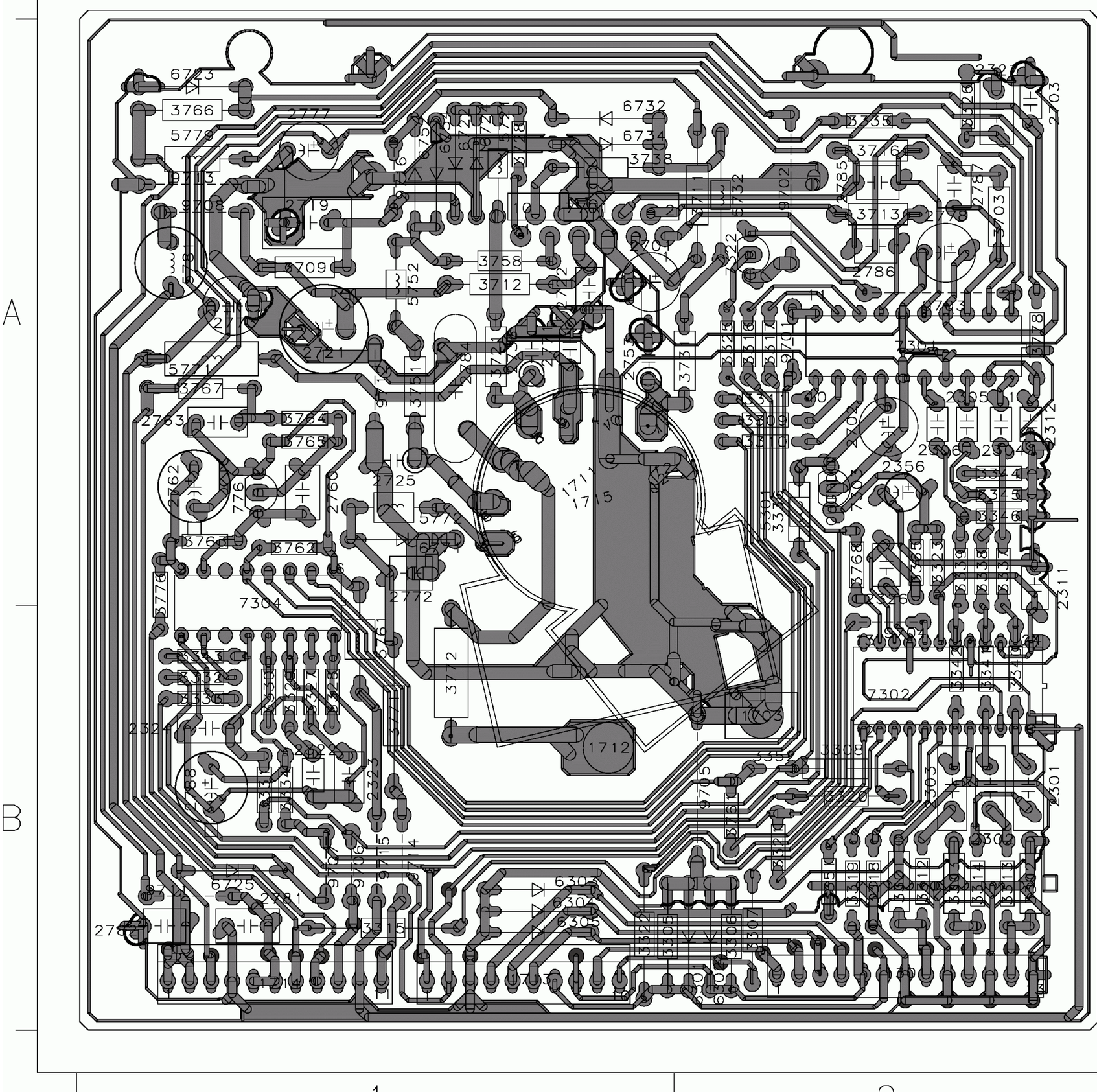
A3 7304-5



2 V/div AC
5 uS/div

Video Panel C.B.A.(A) - copper track side view

54662cus(c
54662hmc(
54662smc(



54662HMC (POSITION)

1301	B1	B
1703	D2	B
1711	C3	B
1712	C2	B
1713	C1	B
1714	E1	B
1715	C3	B
2324	B4	B
2348	A2	B
2721	D5	B
2723	D4	B
2724	E3	B
2725	B3	B
2727	D5	B
2731	D4	B
2732	E2	B
2733	C4	B
2751	B4	B
2752	D5	B
2753	D3	B
2762	B3	B
2764	C4	B
2772	B3	B
2774	E2	B
2775	E2	B
2776	D3	B
2778	A5	B
2779	C1	B
2780	C1	B
2783	A5	B
2786	C2	B
3310	A4	B
3325	B3	B
3332	B3	B
3333	B3	B
3344	B2	B
3345	B2	B
3346	B2	B
3349	A2	B
3351	A2	B
3352	B2	B
3353	B2	B
3354	B3	B
3356	A2	B
3357	A2	B
3358	A3	B
3359	B2	B
3701	D2	B
3702	D1	B
3703	B5	B
3704	B5	B
3705	B4	B
3706	B5	B
3708	D1	B
3709	E2	B
3713	B4	B
3716	B5	B
3718	C1	B
3719	C1	B
3720	C1	B
3721	C4	B
3722	E4	B
3723	D4	B
3724	E4	B
3726	E3	B
3727	E3	B
3728	E4	B
3729	B1	B
3731	D4	B
3732	E4	B
3733	E2	B
3734	E3	B
3736	E3	B
3737	E3	B
3738	D3	B
3751	B4	B
3752	B4	B
3753	E5	B
3754	D5	B
3756	E4	B
3757	E5	B
3758	C5	B
3759	E1	B
3771	D2	B
3772	B2	B
3776	D1	B
3778	E1	B
5301	B5	B
5303	B4	B
5701	B5	B
5702	D5	B
5721	D4	B
5723	D4	B
5732	D4	B
5733	D3	B
5752	C4	B
5753	D5	B
5771	D2	B
5772	B1	B
5773	B1	B
5774	D2	B
5775	D1	B
5779	C5	B
5781	D2	B
6301	A2	B
6302	A1	B
6303	A1	B
6304	A1	B
6711	D1	B
6722	E4	B
6732	D3	B
6751	B5	B
6752	B4	B
6771	B3	B
7301	A5	B
7302	A2	B
7303	A2	B
7304	A4	B
7322	B4	B
7701	C5	B
7721	E4	B
7722	E4	B
7731	E3	B
7732	E3	B
7751	E5	B
7752	E5	B
7761	A3	B
9701	D2	B
9711	C5	B
9712	B5	B
9713	B5	B
9714	B4	B
9715	D5	B
9716	A3	B
9717	B1	B
9718	D1	B
9719	D3	B
9720	A1	B
9721	C5	B
9722	E1	B
9728	B4	B

54662SMC (SMD)

2301	A4	A
2302	A5	A
2304	A1	A
2305	A1	A
2306	A1	A
2307	C1	A
2308	B2	A
2309	A5	A
2310	B2	A
2311	B2	A
2312	A4	A
2313	C4	A
2314	D5	A
2315	C4	A
2316	B1	A
2317	B1	A
2318	B1	A
2319	A5	A
2322	B4	A
2323	B4	A
2325	B4	A
2326	A4	A
2340	A2	A
2341	A3	A
2342	A2	A
2343	A2	A
2344	A2	A
2345	A5	A
2346	A5	A
2347	A5	A
2349	E1	A
2702	C5	A
2722	C5	A
2726	C5	A
2760	A3	A
2761	A3	A
2763	A3	A
2771	C3	A
2781	A1	A
2782	A1	A
3301	B1	A
3302	B1	A
3303	B1	A
3305	A2	A
3306	A1	A
3307	C1	A
3309	A4	A
3311	A4	A
3312	B1	A
3313	B1	A
3314	B1	A
3315	A5	A
3316	B5	A
3317	B5	A
3324	A4	A
3326	B3	A
3327	B4	A
3328	A4	A
3329	B4	A
3330	B4	A
3331	A4	A
3334	A4	A
3335	A5	A
3336	A5	A
3337	A4	A
3338	A3	A
3339	A3	A
3340	A2	A
3341	B3	A
3342	B2	A
3343	B2	A
3347	A3	A
3348	A2	A
3350	A2	A
3355	A3	A
3361	A2	A
3362	A2	A
3372	A5	A
3376	A5	A
3378	C4	A
3379	A2	A
3707	B5	A
3725	E4	A
3730	B4	A
3735	E3	A
3740	A4	A
3741	C5	A
3742	D5	A
3743	C4	A
3744	C5	A
3745	C4	A
3755	E5	A
3761	A3	A
3762	A3	A
3763	A3	A
3764	A3	A
3765	A3	A
3767	B3	A
3777	D1	A
3783	E2	A
6721	D4	A
6724	D4	A
6731	D4	A
6734	D4	A
6754	B4	A

Deflection - Main Panel

MAIN PCB
SB: 56001

107E4 DEVIATION LIST *

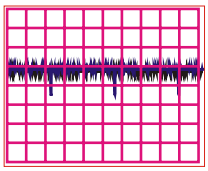
ITEM	CPT TCO	CPT MPR II	PHL TCO	PHL MPR II	LGT CO(Wides)	LGT CO(LU)	LG MPR II	SDIB-Brazil
2612	300nVMPSA	300nVMPSA	300nVMPSA	300nVMPSA	300nVMPSA	300nVMPSA	300nVMPSA	330nVMPSA
2657	540nVMPS	540nVMPS	580nVMPS	580nVMPS	680nVMPS	580nVMPS	580nVMPS	560nVMPS
2605	200nVMPS	200nVMPS	200nVMPS	200nVMPS	200nVMPS	200nVMPS	200nVMPS	220nVMPS
3412	2R2 1/2W	2R2 1/2W	2R4 1/2W	2R4 1/2W	2R2 1/2W	2R2 1/2W	2R2 1/2W	2R2 1/2W
3413	2R4 1/2W	2R4 1/2W	2R7 1/2W	2R7 1/2W	2R4 1/2W	2R4 1/2W	2R4 1/2W	2R2 1/2W

NOTES:
[* *] ACTUAL 190V
[* *] ACTUAL 94V
[R] STAND FOR COMPONENT RESERVED ONLY

F33 L18 3653 J23
F34 L18 3656 C22
1400-1 Q00 3657 G24
1400-2 Q00 3659 J22
1400-3 Q00 3660 I22
1601-A C17 3661 K4
1601-B D17 3662 M22
1601-C N16 3670 D21
1603 H16 3671 E21
1604 L18 3672 G21
1681 M22 3674 E22
1802 P8 3676 E21
1804 L4 3676 D21
2401 N13 3678 F21
2402 M13 3682 M21
2403 N10 3683 M20
2406 M14 3687 Q20
2406 N16 3688 Q21
2407 O14 3691 Q20
2411 N14 3692 N17
2412 O13 3693 N18
2413 O12 3694 N19
2522 E12 3696 O19
2504 G9 3696 O18
2505 F6 3697 N19
2506 F8 3698 N17
2507 F7 3811 O4
2508 F8 3812 N10
2509 E6 3813 N4
2511 F9 3814 N8
2518 F11 3815 N9
2521 B8 3816 N8
2522 B8 3817 N3
2523 C11 3818 N4
2524 E11 3820 M9
2525 I19 3821 L8
2526 G10 3822 L8
2527 B9 3823 L8
2528 B9 3825 M9
2531 B5 3827 O7
2600 J19 3828 J9
2601 J18 3829 J9
2602 J15 3830 K11
2603 M19 3831 O4
2604 D22 3832 K10
2606 D21 3833 J4
2650 W32 3834 L5
2607 I18 3836 K4
2608 I19 3836 N8
2609 L18 3837 J4
2610 J18 3838 J8
2611 D14 3839 O4
2612 D20 3840 P8
2613 D16 3841 M10
2614 D16 3842 M11
2615 E17 3843 K8
2616 E16 3844 K10
2617 D17 3845 I4
2618 E17 3846 I5
2619 E17 3847 L7
2620 F16 3848 K7
2621 C22 3849 O4
2622 C19 3851 N10
2623 K3 3852 O10
2625 L22 3853 O10
2626 G20 3854 O10
2627 H18 3856 O11
2628 G18 3857 I7
2630 B21 3858 I7
2632 L22 3859 F2
2633 E20 3862 G3
2634 D18 3866 F3
2635 I17 3879 K7
2636 H15 3880 L11
2639 H20 4401 O15
2641 I17 4601 K22
2652 E21 4605 H21
2654 G22 4606 H21
2656 F21 5601 B6
2657 E21 5603 D17
2661 D14 5604 F20
2670 D19 5607 F17
2671 D20 5609 I17
2672 I22 5611 E15
2673 E19 5611 L19
2674 D20 5612 D20
2676 I03 5615 D15
2681 N17 5616 J18
2686 I17 5617 E17
2801 L9 5671 D19
2806 L4 6401 M14
2813 L4 6511 G11
2814 L4 6513 E10
2815 L4 6515 G10
2816 J7 6516 F6
2817 N4 6517 H10
2820 I8 6518 B4
2822 P6 6519 C4
2825 K3 6600 E16
2826 P7 6601 I16
2831 O10 6602 I17
2832 I3 6603 J17
2833 K10 6604 H16
2834 K7 6605 H16
2841 G3 6606 K18
3401 M13 6609 M22
3403 M13 6612 E18
3404 N13 6615 E14
3406 N13 6616 F16
3411 N16 6619 D22
3412 O16 6620 E22
3413 O16 6623 F22
3414 N15 6625 G18
3415 N14 6626 D14
3416 O14 6627 I21
3417 O16 6802 N4
3418 N15 6823 K10
3421 G2 7401 N13
3501 C5 7501 C7
3502 B5 7502 B4
3503 C6 7503 B6
3504 C5 7506 H9
3506 C4 7601 I16
3507 B4 7602 J15
3508 C4 7603 J17
3509 C10 7604 E23
3510 B4 7605 E14
3513 B7 7606 E16
3516 C6 7607 E23
3516 F10 7608 G23
3526 F7 7610 D21
3524 F8 7611 H19
3525 F8 7612 G19
3526 G9 7613 H20
3527 E11 7616 B22
3528 G9 7616 E21
3529 F10 7617 G21
3530 B9 7621-A N16
3531 G10 7621-B M21
3532 G10 7682 N19
3537 E10 7683 N19
3538 E11 7685 J22
3539 B9 7801 J5
3544 H8 7802 O11
3545 H10 7803 L10
3546 H8 7805 N9
3553 B6 7806 N8
3554 C11 7807 K11
3555 C11 7809 O4
3556 H10 8502 F2
3557 D12 8801 N2
3558 D12 9508 G3
3561 D11 9622 F3
3562 E11 F001 O2
3563 E11 F002 O2
3567 D6 F003 O2
3568 D6 F004 O2
3569 E6 F005 O2
3601 I17 F006 O2
3602 D22 F007 O2
3603 J16 F008 P2
3604 D22 F009 P2
3605 E23 F010 N2
3606 J16 F011 F2
3607 K19 F012 F2
3608 L18 F013 F2
3609 L18 F014 G2
3610 M18 F015 G2
3612 I15 F016 G2
3613 E23 F017 G2
3614 D24 F018 G2
3615 F23 F019 G2
3616 M22 F020 G2
3617 E24 F022 O9
3618 L23 F023 O8
3619 J16 F024 O8
3621 C14 F026 N16
3623 D14 F027 O16
3624 E13 F030 C16
3626 E16 F031 D16
3626 E15 F032 C19
3627 E16 F035 I19
3628 G22 F036 J19
3629 E14 F037 J19
3630 M22 F040 K22
3631 F23 F041 K19
3633 G23 F042 K19
3636 I19 F043 K19
3637 G19 F045 L19
3638 G20 S001 K23
3640 F19
3641 C20
3642 C20
3644 D20
3645 D18
3646 B23
3647 B21
3648 I23
3650 G17
3651 I18
3652 J23

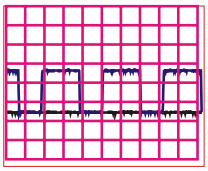
diagram

B1 7503-C



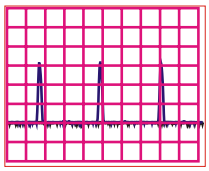
50 V/div AC
5 mS/div

B8 7501-6



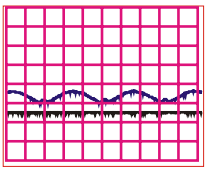
5 V/div AC
10 uS/div

B15 7610-D



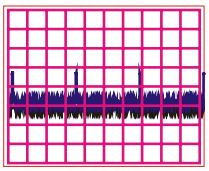
50 V/div AC
10 uS/div

B22 7685-C



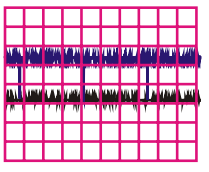
100 V/div AC
10 uS/div

B29 7801-18



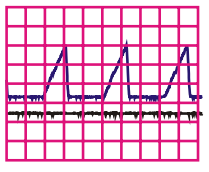
0.5 V/div AC
5 mS/div

B2 7501-14



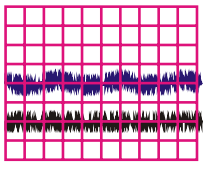
2 V/div AC
5 mS/div

B9 7501-4



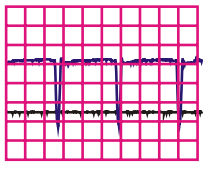
1 V/div AC
10 uS/div

B16 7612-B



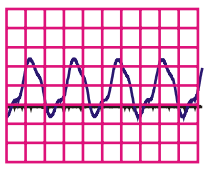
1 V/div AC
5 MS/div

B23 5612-6



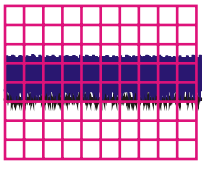
0.5 V/div AC
10 uS/div

B30 7801-8



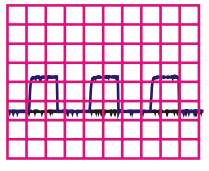
2 V/div AC
2 mS/div

B3 7501-16



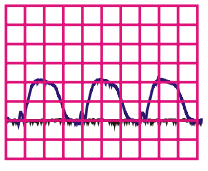
1 V/div AC
5 mS/div

B10 7501-8



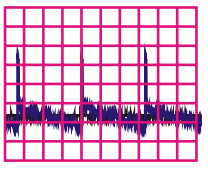
5 V/div AC
10 uS/div

B17 7611-C



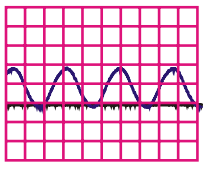
0.5 V/div AC
10 uS/div

B24 7401-5



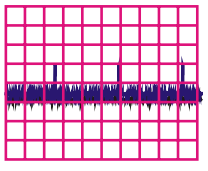
10 V/div AC
5 mS/div

B31 7801-9



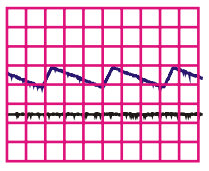
2 V/div AC
2 mS/div

B4 7501-17



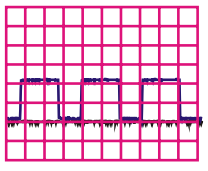
0.5 V/div AC
5 mS/div

B11 7501-29



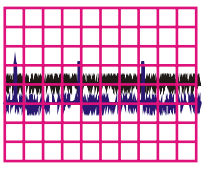
2 V/div AC
10 uS/div

B18 7602-E



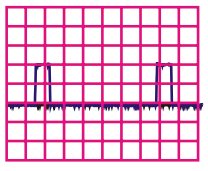
5 V/div AC
10 uS/div

B25 7401-3



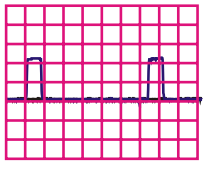
10 V/div AC
5 mS/div

B32 7801-34



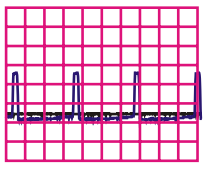
2 V/div AC
5 uS/div

B5 7501-15



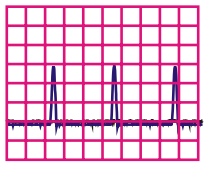
2 V/div AC
5 uS/div

B12 7501-1



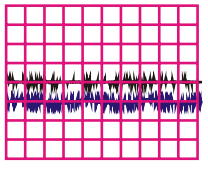
2 V/div AC
10 uS/div

B19 5612-3



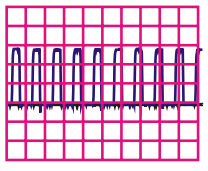
20 V/div AC
10 uS/div

B26 7401-4



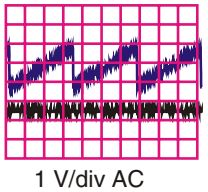
10 V/div AC
5 mS/div

B33 7801-35



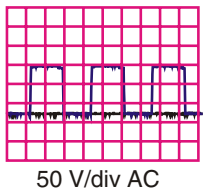
1 V/div AC
5 uS/div

B6 7501-24



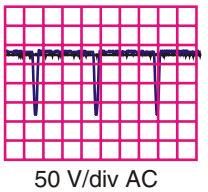
1 V/div AC
5 mS/div

B13 7605-D



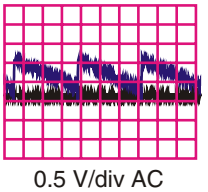
50 V/div AC
10 uS/div

B20 5612-9



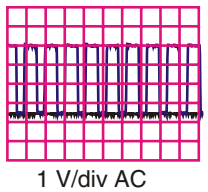
50 V/div AC
10 uS/div

B27 7401-1



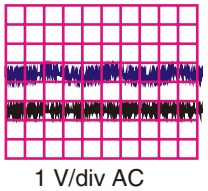
0.5 V/div AC
5 mS/div

B34 7801-36



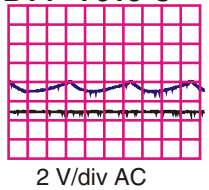
1 V/div AC
5 uS/div

B7 7501-11



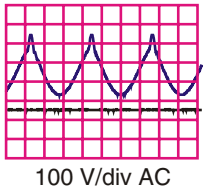
1 V/div AC
5 mS/div

B14 7615-C



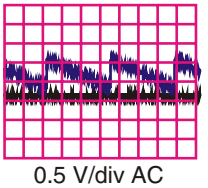
2 V/div AC
10 uS/div

B21 5612-12



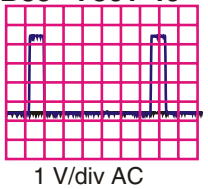
100 V/div AC
10 uS/div

B28 7401-7



0.5 V/div AC
5 mS/div

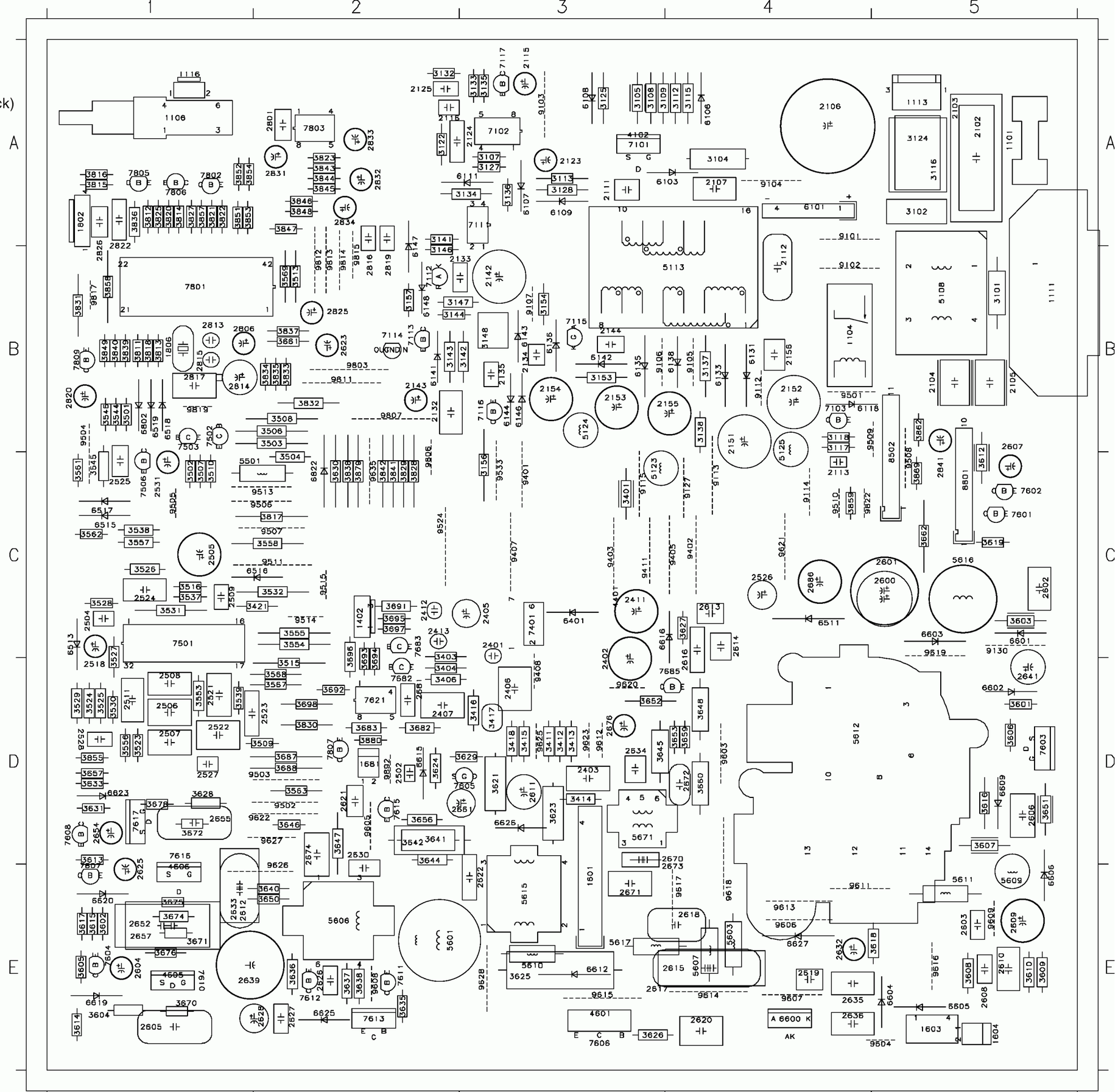
B35 7801-40



1 V/div AC
5 uS/div

56001hmc

56001cus (copper track)



Main Panel C.B.A.(B,C) - copper track side view

Go to cover page

# REF	GRID	BOARD SIDE
1101	G2	B
1104	E2	B
1106	G8	B
1111	F1	B
1113	G2	B
1115	F5	B
1402	D6	B
1601	B4	B
1602	B5	B
1603	A2	B
1604	A1	B
1802	F8	B
1806	E7	B
1871	D8	B
1872	E8	B
1873	E8	B
1874	C8	B
1875	C8	B
2103	F2	B
2104	E2	B
2105	E1	B
2106	G3	B
2107	G4	B
2111	G4	B
2112	F2	B
2113	D1	B
2116	G5	B
2118	G5	B
2123	F5	B
2124	G5	B
2131	E5	B
2132	E5	B
2133	E5	B
2134	D2	B
2141	E4	B
2142	F4	B
2151	E3	B
2152	E3	B
2153	E3	B
2154	E4	B
2155	E3	B
2401	C5	B
2402	D5	B
2403	B4	B
2405	C5	B
2406	C4	B
2407	C5	B
2411	C5	B
2412	C5	B
2413	C5	B
2501	E7	B
2502	C5	B
2504	C8	B
2505	C7	B
2506	B8	B
2507	B8	B
2508	C8	B
2509	C7	B
2510	D8	B
2511	C8	B
2512	D8	B
2513	D7	B
2514	E7	B
2518	C8	B
2521	B7	B
2522	C7	B
2523	B7	B
2524	C8	B
2525	E8	B
2526	D3	B
2527	B7	B
2528	C8	B
2529	B8	B
2600	D2	B
2601	D2	B
2602	D1	B
2603	A1	B
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2606	B1	B
2607	A8	B
2608	A1	B
2609	A1	B
2610	A1	B
2611	B4	B
2612	B6	B
2613	B4	B
2614	A4	B
2615	A3	B
2616	B4	B
2617	A4	B
2618	A3	B
2619	D1	B
2620	A3	B
2621	A5	B
2622	B5	B
2623	B6	B
2615	A3	B
2616	B4	B
2617	A4	B
2618	A3	B
2619	D1	B
2620	A3	B
2621	A5	B
2622	B5	B
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2624	C3	B
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2633	B6	B
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2681	C5	B
2682	C5	B
2683	C5	B
2684	D6	B
2685	C6	B
2686	D2	B
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2804	G6	B
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2841	D5	B
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3103	F4	B
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3105	G4	B
3106	F4	B
3107	G4	B
3108	G4	B
3109	G4	B
3110	G2	B
3111	F4	B
3112	G4	B
3113	F4	B
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3116	G2	B
3117	E6	B
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3128	F5	B
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3128	F5	B
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3134	G5	B
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3136	E4	B
3137	D2	B
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3143	E5	B
3144	E5	B
3145	E5	B
3146	E5	B
3147	F5	B
3153	E2	B
3154	D2	B
3156	D2	B
3157	E3	B
3401	D5	B
3402	D5	B
3403	C5	B
3404	C5	B
3406	C5	B
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3412	C4	B
3413	C4	B
3414	B4	B
3415	C4	B
3416	C5	B
3417	C4	B
3418	C5	B
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3849	F7	B
3851	F7	B
3852	G7	B
3853	F7	B
3854	F7	B
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3856	F6	B
3857	F7	B
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3851	F7	B
3852	G7	B
3853	F7	B
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3855	B8	B
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3857	F7	B
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3860	E7	B
3861	E6	B
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3874	D8	B
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9625	C4	B
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9808	F8	B
9809	F6	B
9811	E6	B
9812	F6	B
9814	G7	B
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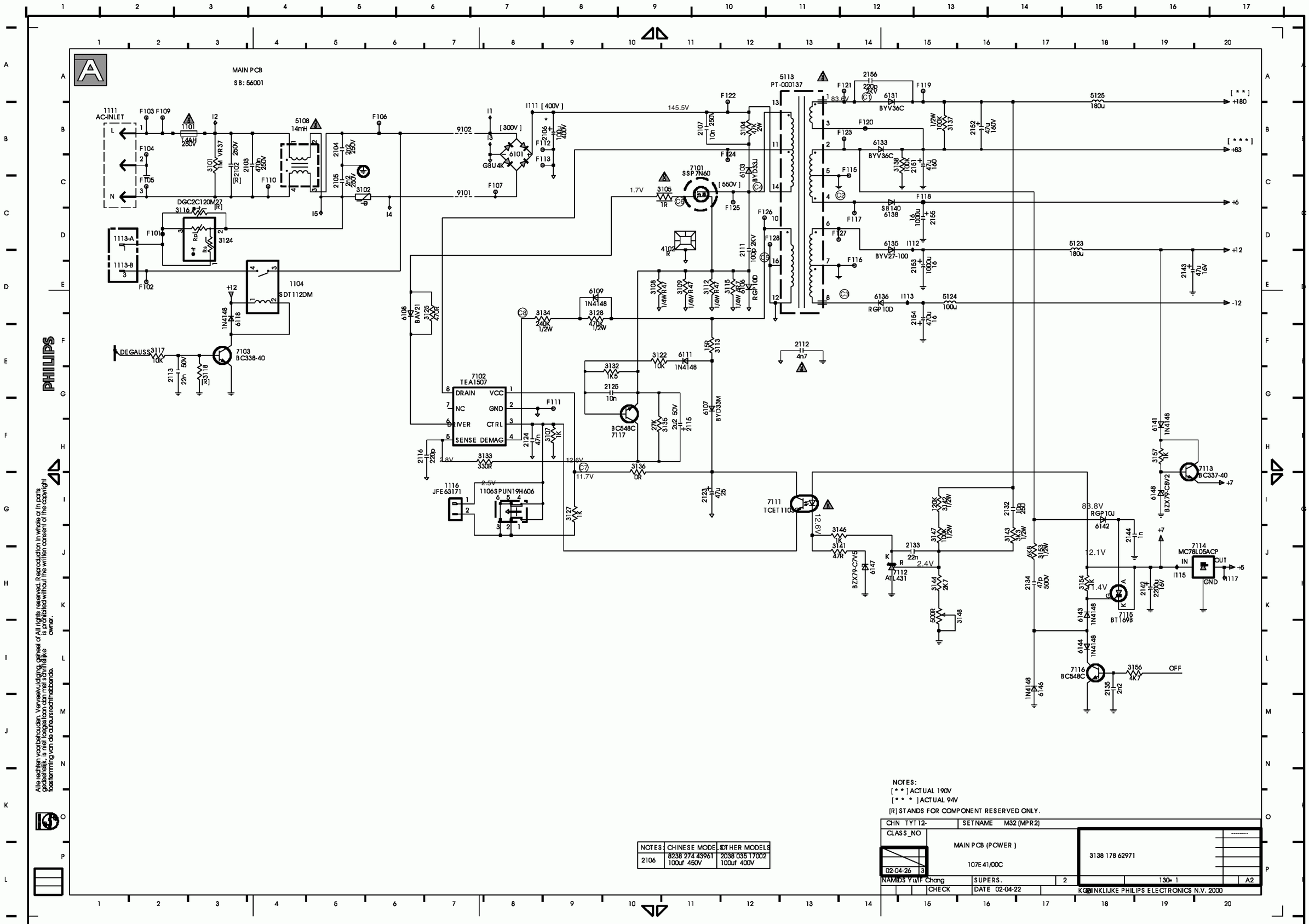
Power Supply - Main Panel Schematic diagram



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1101 B3
1104 D4
1106 G7
1111 B2
1113-A C2
1113-B D2
1116 G6
2102 C3
2103 B4
2104 B5
2105 C5
2106 B8
2107 B10
2111 C10
2112 E11
2113 E2
2115 F9
2116 F6
2123 G10
2124 F7
2125 E8
2132 G14
2133 H12
2134 H14
2136 I15
2142 H16
2143 D16
2144 G15
2151 B13
2152 B13
2153 D13
2154 D13
2155 C13
2156 A12
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3102 C5
3104 B10
3105 C9
3107 F8
3108 D9
3109 D9
3112 D10
3113 E10
3115 D10
3116 C3
3117 E2
3118 E3
3122 E9
3124 D2
3125 D6
3127 G8
3128 D8
3132 E8
3133 F7
3134 D7
3135 F9
3136 F9
3137 B13
3138 B12
3141 H11
3142 G13
3143 G14
3144 H13
3146 G11
3147 G13
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9102 B6
F101 C2
F102 D2
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F104 B2
F105 C2
F106 B5
F107 C7
F109 B2
F110 C4
F111 F8
F112 B7
F113 B7
F115 B12
F116 D12
F117 C12
F118 C13
F119 A13
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F126 D11
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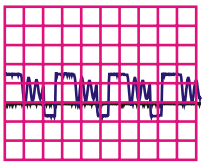
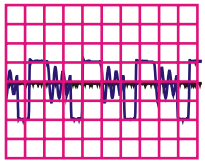
F128 D11

C1 5113-1



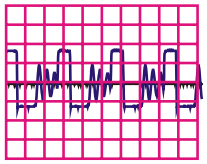
100 V/div AC
5 uS/div

C2 5113-4



5 V/div AC
5 uS/div

C3 5113-8



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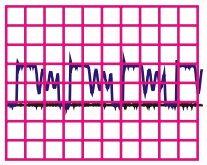
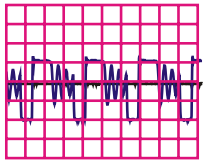
5 uS/div

C4 5113-13



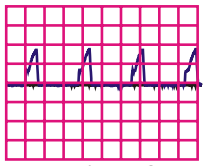
100 V/div AC
5 uS/div

C5 5113-10



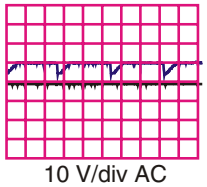
10 V/div AC
5 uS/div

C6 7101-G



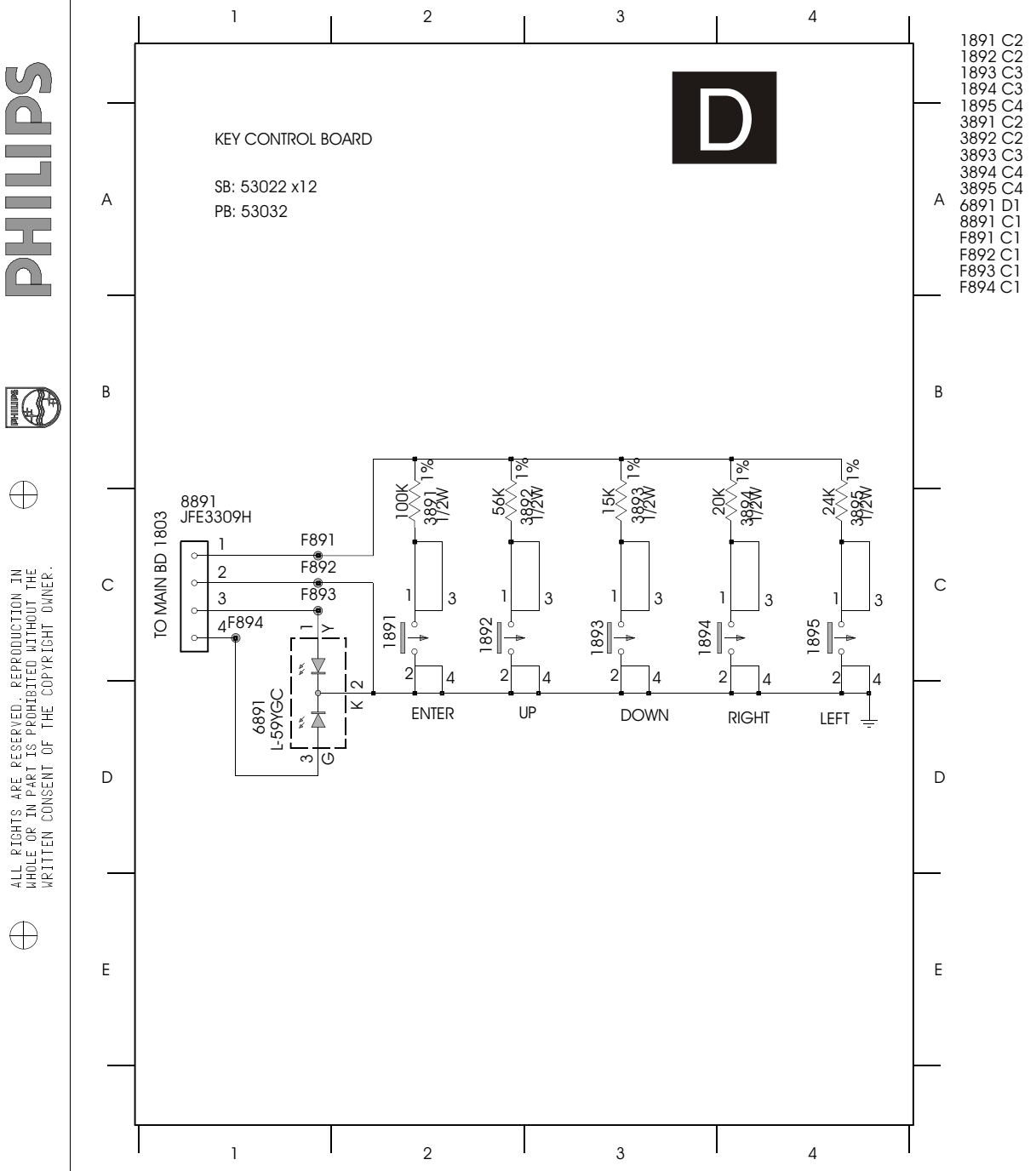
5 V/div AC
5 uS/div

C7 7111-4



10 V/div AC
5 uS/div

Key Control Schematic diagram



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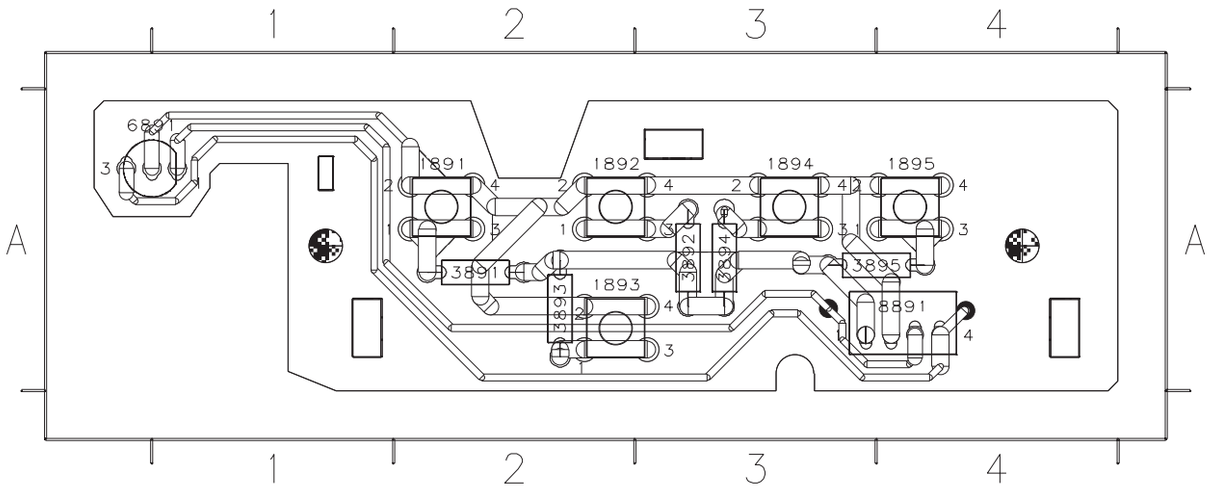
CN: TYT12-						
CLASS NO.	KEY CONTROL		3138 178 62711			--------
02-04-26 3	M32 107E41/00C(MPR2)					
NAME TM Hsiao	SUPERS	1	10	130 - 1		A4
CHECK	DATE 02-04-26	© Philips Electronics N.V.				

Key Control Panel C.B.A.(D)



1891	A2	B
1892	A2	B
1893	A2	B
1894	A3	B
1895	A4	B
3891	A2	B
3892	A3	B
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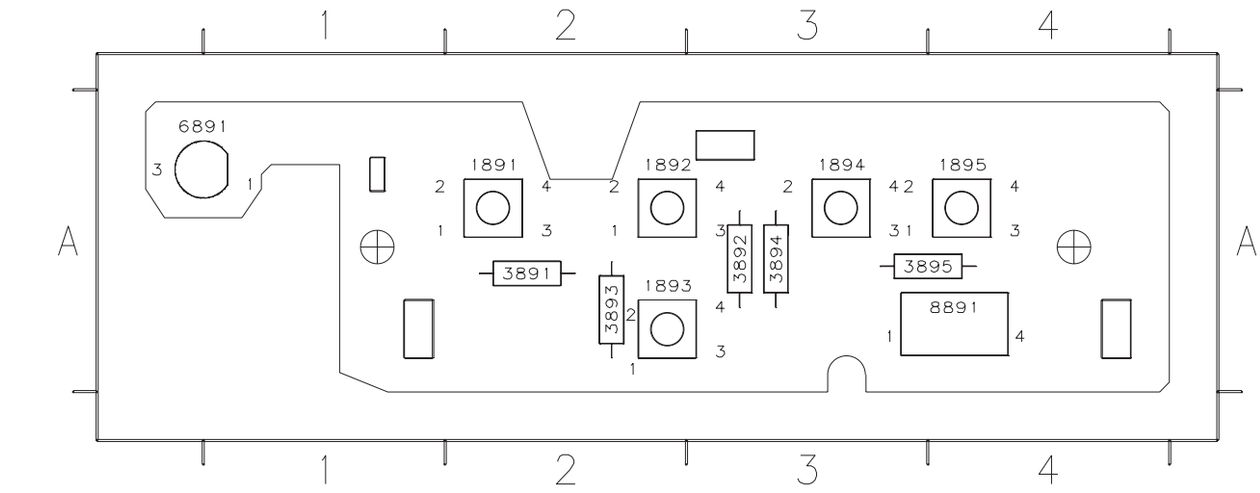
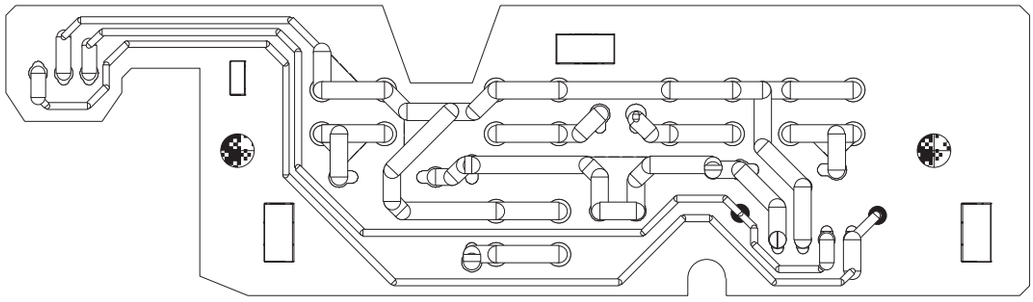
3894	A3	B
3895	A3	B
6891	A1	B
8891	A4	B

53022cus

53022hmc





0. Warning

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically. When repairing, make sure that you are connected with the same potential as the mass of the unit via a wrist wrap with resistance. Keep components and tools also at the same potential !

1. Servicing of SMDs (Surface Mounted Devices)

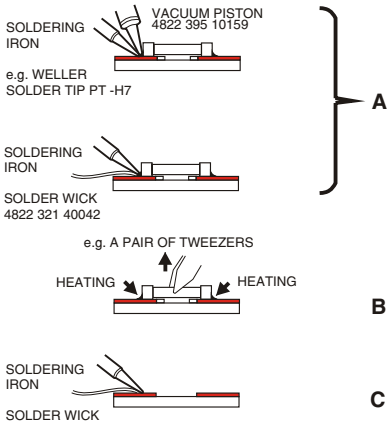
1.1 General cautions on handling and storage

- Oxidation on the terminals of SMDs results in poor soldering. Do not handle SMDs with bare hands.
- Avoid using storage places that are sensitive to oxidation such as places with sulphur or chlorine gas, direct sunlight, high temperatures or a high degree of humidity. The capacitance or resistance value of the SMDs may be affected by this.
- Rough handling of circuit boards containing SMDs may cause damage to the components as well as the circuit boards. Circuit boards containing SMDs should never be bent or flexed. Different circuit board materials expand and contract at different rates when heated or cooled and the components and/or solder connections may be damaged due to the stress. Never rub or scrape chip components as this may cause the value of the component to change. Similarly, do not slide the circuit board across any surface.

1.2 Removal of SMDs

- Heat the solder (for 2-3 seconds) at each terminal of the chip. By means of litz wire and a slight horizontal force, small components can be removed with the soldering iron. They can also be removed with a solder sucker (see Fig. 1A)

Fig. 1 DISMOUNTING



- While holding the SMD with a pair of tweezers, take it off gently using the soldering iron's heat applied to each terminal (see Fig. 1 B).
- Remove the excess solder on the solder lands by means of litz wire or a solder sucker (see Fig. 1C).

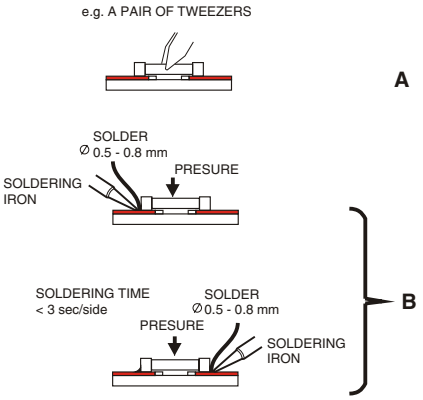
1.3 Caution on removal

- When handling the soldering.iron. use suitable pressure and be careful.
- When removing the chip, do not use undue force with the pair of tweezers.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- The chip, once removed, must never be reused.

1.4 Attachment of SMDs

- Locate the SMD on the solder lands by means of tweezers and solder the component on one side. Ensure that the component is positioned correctly on the solder lands (see Fig.2A).
- Next complete the soldering of the terminals of the component (see Fiq. 2B).

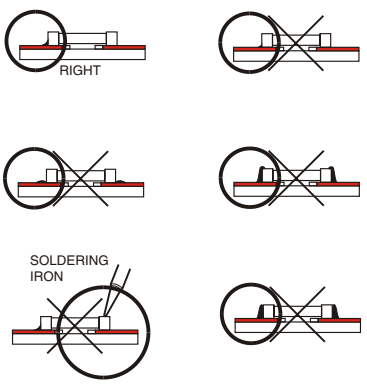
Fig. 2 MOUNTING



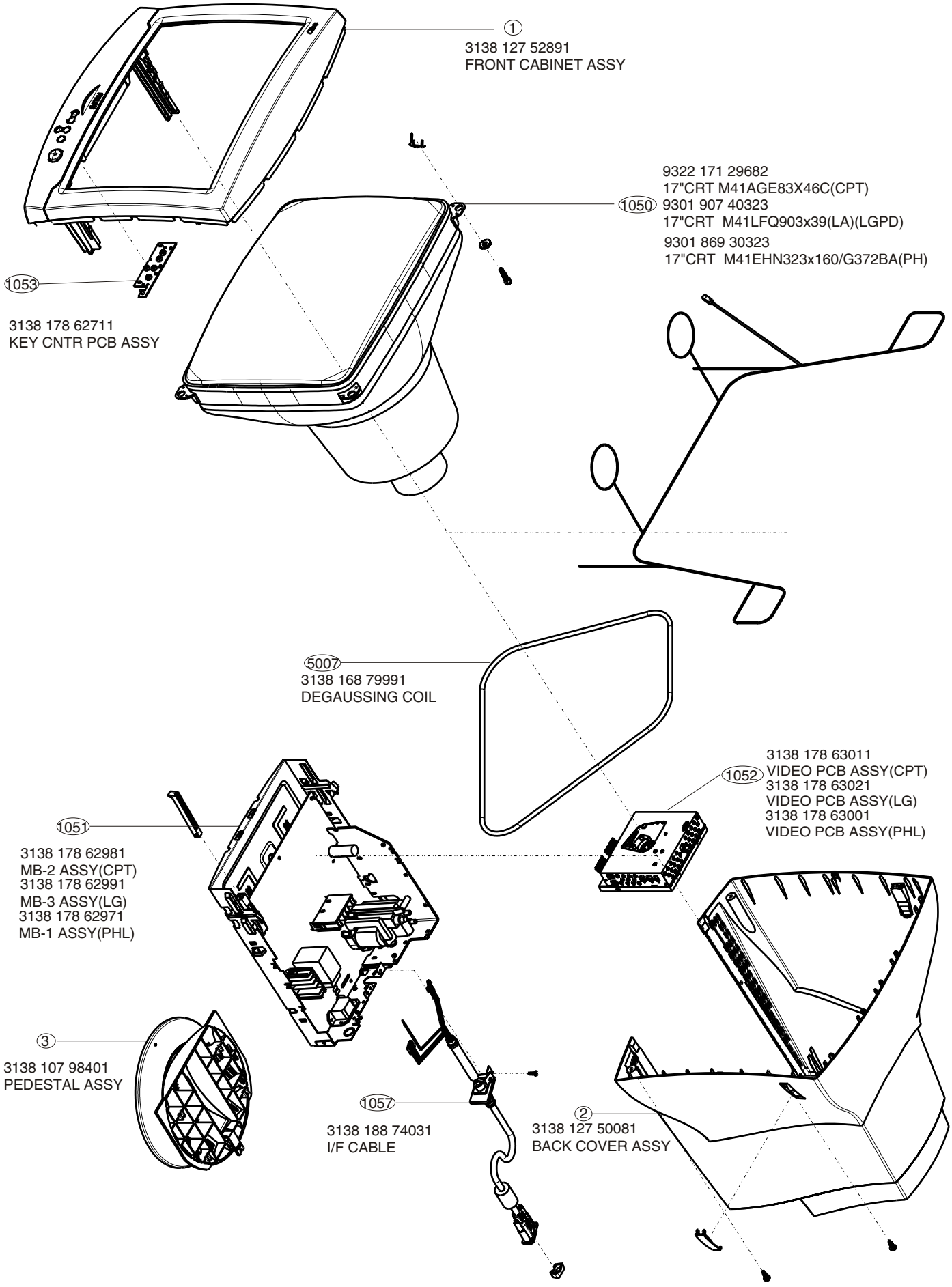
2. Caution when attaching SMDs

- When soldering the SMD terminals, do not touch them directly with the soldering iron. The soldering should be done as quickly as possible, care must be taken to avoid damage to the terminals of the SMDs themselves.
- Keep the SMD's body in contact with the printed board when soldering.
- The soldering iron to be used (approx. 30 W) should preferably be equipped with a thermal control (soldering temperature: 225 to 250 °C).
- Soldering should not be done outside the solder land.
- Soldering flux (of rosin) may be used, but should not be acidic.
- After soldering, let the SMD cool down gradually at room temperature.
- The quantity of solder must be proportional to the size of the solder land. If the quantity is too great, the SMD might crack or the solder lands might be torn loose from the printed board (see Fig. 3).

Fig. 3 Examples



Exploded view



Recommended Parts List

Recommended parts list of 107E41/00C

0001	313812752891	FRONT CABINET ASSY
0002	313812750081	BACK COVER ASSY
0003	313810798401	PEDESTAL ASSY
0047	313810454651	BUTTON-POWER
0049	313810454661	BUTTON-FUNCTION
0051	313810454081	SCREW COVER
0178	313810540481	SETTING UP GUIDE
0450	313810667131	CARTON
0451	313810656344	CUSHION - RIGHT
0452	313810656353	CUSHION - LEFT
0454	313810656581	PE BAG
0601	313811704151	E-D.F.U. ASSY
1050	932217129682	CRTM41AGE83X46C(PLL)(CPT0)
1050	930190740323	CRTM41LFQ903X39(LA)(LGPD)
1050	930186930323	CRTM41EHN323X160/G372BA(PHCO)
1051	313817862981	MB-2 ASSY (CPT)
1051	313817862991	MB-3 ASSY (LG)
1051	313817862971	MB-1 ASSY
1052	313817863011	VIDEO PCB ASSY (CPT)
1052	313817863021	VIDEO PCB ASSY (LG)
1052	313817863001	VIDEO PCB ASSY (PHL)
1053	313817862711	CONTROL PCB ASSY
1056	313813971481	BB MAINS CORD
1057	313813971491	BB I/F CABLE
1101	242208600208	FUSE 5X20 HT 4A /250V IEC
1104	242213207402	RELAY 1P 12V 10/80A SDT-SS L
1106	243812800183	SWITCH
1161	243807098118	MAINSCORD(220V)-1.5M-CM30
1162	313818874031	CORD SUB-D 15/1M5/12 330942 UL
1806	243854300061	RES XTL 12MHZ 30P HC49U B
5007	313816879991	DEGAUSSING COIL
5108	313816872811	LINE FILTER(143Y1R5)
5113	313818874321	TFM SMT LAYER SRW35EC-T80V118
5601	313818874161	LINEARITY COIL 4.4UH HL2455H-077N
5612	313818874261	TFM LOT LAYER 11MM WIRE
5615	313818874181	TFM SIG DRIVER SRW16UM-T12H2
5616	313818871121	DRUM CHOKE
5671	313816877381	DAF XFMR(SRW16EC-T119V3)
5761	243853598025	IND FXD BEAD EMI 1MHZ 60R R
6101	932205814682	BRIGE GBU4K
7101	932215891687	FET POW STP6NC60
7102	935267356112	IC TEA1507P/N1
7111	932214014667	PHOTOCOUPLER TCET1103G 4P
7112	933771100686	IC TL431CLPRP 3P
7114	932208234676	IC L78L05ACZ
7301	932218450682	IC STV9211
7304	932218565682	IC MT68275-031
7401	933922940682	IC TDA8172
7501	935267455112	IC TDA4841PS/V3 32P
7603	932214234687	FET POW SFP9634 (FSC0)
7605	934003960126	TRANS BSN254A
7606	934029910127	TRANSTER BU2522AF
7613	931101054687	TRA POW TIP122
7616	932203168687	FET POW IRF640
7621	933984890682	IC LM358N
7801	823827443671	CPU,IC6148-K420PH-53A
7803	932212662682	IC M24C16-BN6

Spare Parts List

Parts List
CTV : 107E41/00C

0001	313812752891	FRONT CABINET ASSY
0002	313812750081	BACK COVER ASSY
0003	313810798401	PEDESTAL ASSY
0047	313810454651	BUTTON-POWER
0049	313810454661	BUTTON-FUNCTION
0051	313810454081	SCREW COVER
1050▲	932217129682	CRTM41AGE83X46C (PLL)(CPT0)
1050▲	930190740323	CRTM41LFQ903X39 (LA)(LGPD)
1050▲	930186930323	CRTM41EHN323X160/ G372BA(PHCO)

Various

0178	313810540481	SETTING UP GUIDE
0450	313810667131	CARTON
0451	313810656344	CUSHION - RIGHT
0452	313810656353	CUSHION - LEFT
0454	313810656581	PE BAG
0601	313811704151	E-D.F.U. ASSY

Accessories

1056▲	313813971481	BBMAINS CORD
1057	313813971491	BBI/F CABLE
1161▲	243807098118	MAINS CORD(220V)-1.5M
1162	313818874031	Cord SUB-D 15/1M5

1051 MB-1 ASSY(313817862971)

1051	313817862981	MB-2 ASSY (CPT)
1051	313817862991	MB-3 ASSY(LG)
1101▲	242208600208	FUSE 5X20 HT 4A /250V IEC
1104▲	242213207402	RELAY 1P 12V 10/80A SDT-SSL
1106▲	243812800183	SWITCH
1252	313817860671	HOR.T/R ASSY(107E4)
1253	313817862891	POWER TRANS ASSY
1255	313817855111	VERT IC ASSY

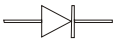
2103	203831000007	CAP MPP 275V S 470N PM10 B
2104	225281295007	CERSAF 250V S 2N2 PM20 B
2105	225281295007	CERSAF 250V S 2N2 PM20 B
2106	203803517002	ELCAP LS 4V S 1U PM20 B
2107	203830250229	CAP MPOL 250V S 10N PM5 A
2111	225271214016	CERHDT F-Y5R 2KV S 1P PM10 A
2112	202055490161	CERSAF CD 250V S 4N7 PM20 B
2113	225265508233	CER2 DC Z5V 50V S 22N P8020 A
2115	203803513503	ELCAP RGA 50V S 2U2 PM20 A
2116	225261508211	CER2 DC Y5P 50V S 220P PM10 A
2123	203801750285	ELCAP REA 25V S 47U PM20 A
2124	225279508433	CER2 DC Y5V 50V S 47N P8020 A
2125	225265508033	CER2 DC Z5V 50V S 10N P8020 A
2132	203830250229	CAP MPOL 250V S 10N PM5 A
2133	225265508233	CER2 DC Z5V 50V S 22N P8020 A
2134	225256108406	CER1 DC SL 1KV S 47P PM10 A
2135	225261508221	CER2 DC Y5P 50V S 2N2 PM10 A
2142	202202000716	ELP CAPACITOR 47UF/10V
2143	203803513203	ELCAP RGA 16V S 47U PM20 A
2144	225261808021	CER2 DC Y5P 5V S 1N PM10 A
2151	202202000717	ELCAP GS 160V S 47U PM20
2152	202202000717	ELCAP GS 160V S 47U PM20
2153	203803511211	ELCAP REA 16V S 10U PM20 B
2154	203803511222	ELCAP REA 16V S 470U PM20 A
2155	203803513205	ELCAP RGA 16V S 10U PM20 B
2156	225271214216	CERHDT F-Y5R 2KV S 220P PM10 A
2401	225261508411	CER2 DC Y5P 50V S 470P PM10 A
2402	203803511222	ELCAP REA 16V S 470U PM20 A
2403	222236525473	CAP MPOL 1V S 47N PM10 A
2405	203803511507	ELCAP REA 50V S 47U PM20 A
2406	222236525334	CAP MPOL 1V S 330N PM10 A
2407	222236585223	CAP MPOL 1V S 22N PM10 A
2411	203803511222	ELCAP REA 16V S 470U PM20 A
2412	225261508021	CER2 DC Y5P 50V S 1N PM10 A
2413	225261508021	CER2 DC Y5P 50V S 1N PM10 A
2502	225279508453	CER2 DC Y5V 50V 1N P8020 A
2504	225250508355	CER1 DC NP0 50V S 39P PM5 A
2505	203803350019	ELCAP VZ 16V S 10U PM20 A
2506	203830150186	CAP PP PPN 1V S 8N2 PM5 A
2507	222236526104	CAP MPOL 1V S 1N PM5 A
2508	203830250218	CAP MPOL 1V S 10N PM2 A
2509	225250508015	CER1 DC NP0 50V S 1P PM5 A
2511	203830150143	CAP PP PPN 1V S 5N6 PM5 A
2518	203801750216	ELCAP RE 16V S 22U PM20 R
2521	222236526104	CAP MPOL 1V S 1N PM5 A
2522	222236525224	CAP MPOL 1V S 220N PM10 A
2523	225261508031	CER2 DC Y5P 50V S 10N PM10 A
2524	203830150136	CAP PP PPN 1V S 3N3 PM5 R
2525	225279508453	CER2 DC Y5V 50V 1N P8020 A
2526	203803511704	ELCAP REA 1V S 10U PM20A
2527	225261508221	CER2 DC Y5P 50V S 2N2 PM10 A
2528	225261508321	CER2 DC Y5P 50V S 3N3 PM10 A
2531	203803513203	ELCAP RGA 16V S 47U PM20 A
2600	203803513912	ELCAP RGA 2V S 47U PM20 B
2602	203830250229	CAP MPOL 250V S 10N PM5 A
2603	225261808011	CER2 DC Y5P 5V S 1P PM10 A
2604	203801750221	ELCAP RE 50V S 1U PM20 R
2605	203830100414	CAP MPP MPS250V S 2N PM5 B
2606	222236586333	CAP MPOL 1V S 33N PM5 A
2607	203803513503	ELCAP RGA 50V S 2U2 PM20 A
2609	203803513903	ELCAP RGA 250V S 10U PM20 B
2611	203803513906	ELCAP RGA 250V S 3U3 PM20 A
2612	203830100426	CAP MPP MPSA4V S 3N PM5 B
2613	225271214216	CERHDT F-Y5R 2KV S 220P PM10 A
2614	225271214216	CERHDT F-Y5R 2KV S 220P PM10 A
2616	203830150136	CAP PP PPN 1V S 3N3 PM5 R
2617	222237590634	CAP PP-MPOL 2KV 5S 4N7 PM5 B
2618	222237590617	CAP PP-MPP 630V S 6N8 PM5 B
2620	222236525154	CAP MPOL 1V S 150N PM10 A
2622	222236585103	CAP MPOL 1V S 10N PM10 A
2623	203803511503	ELCAP REA 50V S 4U7 PM20 A
2625	203801750221	ELCAP RE 50V S 1U PM20 R
2626	225261808411	CER2 DC Y5P 5V S 470P PM10 A
2627	225265508233	CER2 DC Z5V 50V S 22N P8020 A
2628	203803511204	ELCAP REA 16V S 1U PM20A
2630	225279508453	CER2 DC Y5V 50V 1N P8020 A
2632	203801750283	ELCAP 25V S 10U PM20 R
2634	225271214016	CERHDT F-Y5R 2KV S 1P PM10 A
2635	203830150111	CAP PPN 250V S 4N7 PM5
2636	203830150111	CAP PPN 250V S 4N7 PM5
2639	203803300008	ELCAP BP BP 63V S 3U3 PM20 B
2641	203803513906	ELCAP RGA 250V S 3U3 PM20 A
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2657	202233300211	CAP MPP MPS250V S 540N PM5 B
2657	202233300212	CAP MPP MPS250V S 580N PM5 B
2661	202203100105	ELCAP KF 160V S 0U47 PM20 A
2671	222236545223	CAP MPOL 250V S 22N PM10 A
2672	225264133527	CER2 DC Z5U 1KV S 5N6 PM20 B
2673	225261808221	CER2 DC Y5P 5V S 2N2 PM10A
2676	203803511503	ELCAP REA 50V S 4U7 PM20 A
2681	225265508233	CER2 DC Z5V 50V S 22N P8020 A
2686	203803513904	ELCAP RGA 250V S 22U PM20 B

2801	225279508453	CER2 DC Y5V 50V 1N P8020 A
2806	203803513203	ELCAP RGA 16V S 47U PM20 A
2813	225250508205	CER1 DC NP0 50V S 22P PM5 A
2814	203803511219	ELCAP REA 16V S 220U PM20 A
2815	225250508205	CER1 DC NP0 50V S 22P PM5 A
2816	225250508015	CER1 DC NP0 50V S 1P PM5 A
2819	225250508015	CER1 DC NP0 50V S 1P PM5 A
2820	203801750222	ELCAP RE 50V S 2U2 PM20 R
2822	225279508433	CER2 DC Y5V 50V S 47N P8020 A
2825	203801750222	ELCAP RE 50V S 2U2 PM20 R
2826	225279508453	CER2 DC Y5V 50V 1N P8020 A
2831	203801750222	ELCAP RE 50V S 2U2 PM20 R
2832	203801750222	ELCAP RE 50V S 2U2 PM20 R
2833	203801750222	ELCAP RE 50V S 2U2 PM20 R
2834	203801750222	ELCAP RE 50V S 2U2 PM20 R
2841	203801750222	ELCAP RE 50V S 2U2 PM20 R

3101	232224213105	RST MGL VR37 A 1M PM5 A
3102	213866000027	NTC DC SCK-104 S 10R PM15 B
3104	313810050511	MET FLM RST RSS2T 47K 6E
3105	232220533108	RST FUSE NFR25 A 1R PM5 A
3107	213810113102	RST CRB CFR-12 A 1K PM5 A
3108	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3109	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3112	213811273477	RST CRB CFR-25 A 0R47 PM5 A
3113	213810113159	RST CRB CFR-12 A 15R PM5 A
3117	213810113103	RST CRB CFR-12 A 10K PM5 A
3122	213810113103	RST CRB CFR-12 A 10K PM5 A
3124	213866000036	PTC DBL-MONO 270V S 9R PM20
3125	213810113471	RST CRB CFR-12 A 470R PM5 A
3127	213810113102	RST CRB CFR-12 A 1K PM5 A
3128	212211000427	RST MFLM MF1/2WS A 470K PM1
3132	213810113152	RST CRB CFR-12 A 1K5 PM5 A
3133	213810113331	RST CRB CFR-12 A 330R PM5 A
3134	212211000419	RST MFLM MF1/2WS A 240K PM1
3135	213810113273	RST CRB CFR-12 A 27K PM5 A
3136	213810100369	RST JUMP CR-12 A MAX 0R01A
3137	212211000409	RST MFLM MF1/2WS A 1K PM1 A
3138	212211000409	RST MFLM MF1/2WS A 1K PM1 A
3141	213810113479	RST CRB CFR-12 A 47R PM5 A
3142	212211000412	RST MFLM MF1/2WS A 120K PM1
3143	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3144	213810113272	RST CRB CFR-12 A 2K7 PM5 A
3146	213810113102	RST CRB CFR-12 A 1K PM5 A
3147	212211000409	RST MFLM MF1/2WS A 1K PM1 A
3148	213836500077	RTRM CER LIN 5R H VG067TL1B
3153	212211000378	RST MFLM MF1/2WS A 6K8 PM1 A
3154	213810113102	RST CRB CFR-12 A 1K PM5 A
3156	213810113472	RST CRB CFR-12 A 4K7 PM5 A
3157	213810113102	RST CRB CFR-12 A 1K PM5 A
3401	232220733228	RST FUSE NFR25H A 2R2 PM5 A
3403	213810113471	RST CRB CFR-12 A 470R PM5 A
3404	213810113471	RST CRB CFR-12 A 470R PM5 A
3406	212211000365	RST MFLM MF1/2WS A 2K2 PM1
3411	212211000341	RST MFLM MF1/2WS A 270R PM1
3412	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000306	RST MFLM MF1/2WS A 2R7 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3413	212211000305	RST MFLM MF1/2WS A 2R4 PM1
3414	212211000315	RST MFLM MF1/2WS A 10R PM1
3415	212211000298	RST MFLM MF1/2WS A 1R PM1 A
3416	212211000365	RST MFLM MF1/2WS A 2K2 PM1
3417	212261200062	NTC DC TTC-501 S 5R PM5 A
3421	213810113221	RST CRB CFR-12 A 220R PM5 A
3501	213810113103	RST CRB CFR-12 A 10K PM5 A
3502	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3503	212211000398	RST MFLM MF1/2WS A 39K PM1
3504	212211000412	RST MFLM MF1/2WS A 120K PM1
3506	212211000409	RST MFLM MF1/2WS A 1K PM1 A
3507	213810113333	RST CRB CFR-12 A 33K PM5 A
3508	212211000404	RST MFLM MF1/2WS A 62K PM1
3509	213810113222	RST CRB CFR-12 A 2K2 PM5 A
3510	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3513	213810113471	RST CRB CFR-12 A 470R PM5 A
3515	213810113183	RST CRB CFR-12 A 18K PM5 A
3516	213810113104	RST CRB CFR-12 A 1K PM5 A
3523	213810113332	RST CRB CFR-12 A 3K3 PM5 A
3524	212211000358	RST MFLM MF1/2WS A 1K2 PM1
3525	231291512802	RST MFLM MBB0207 A 2K8 PM1 A
3526	212211000385	RST MFLM MF1/2WS A 12K PM1
3527	213810113123	RST CRB CFR-12 A 12K PM5 A
3528	213810113822	RST CRB CFR-12 A 8K2 PM5 A
3529	212211000393	RST MFLM MF1/2WS A 24K PM1
3530	213810113681	RST CRB CFR-12 A 680R PM5 A
3531	212211000394	RST MFLM MF1/2WS A 27K PM1
3532	212211000409	RST MFLM MF1/2WS A 1K PM1 A
3537	213810113222	RST CRB CFR-12 A 2K2 PM5 A
3538	212211000361	RST MFLM MF1/2WS A 1K5 PM1
3539	213810113561	RST CRB CFR-12 A 560R PM5 A
3544	213810113183	RST CRB CFR-12 A 18K PM5 A
3545	212211000365	RST MFLM MF1/2WS A 2K2 PM1
3546	213810113183	RST CRB CFR-12 A 18K PM5 A
3553	212211000392	RST MFLM MF1/2WS A 22K PM1
3554	213811273102	RST CRB CFR-25 A 1K PM5 A
3555	213811273102	RST CRB CFR-25 A 1K PM5 A
3556	213810113272	RST CRB CFR-12 A 2K7 PM5 A
3557	212211000412	RST MFLM MF1/2WS A 120K PM1
3558	212211000412	RST MFLM MF1/2WS A 120K PM1
3561	213810113333	RST CRB CFR-12 A 33K PM5 A
3562	213810113562	RST CRB CFR-12 A 5K6 PM5 A
3563	213810113101	RST CRB CFR-12 A 1R PM5 A
3567	213810113101	RST CRB CFR-12 A 1R PM5 A
3568	213810113101	RST CRB CFR-12 A 1R PM5 A
3569	213810113471	RST CRB CFR-12 A 470R PM5 A
3601	213810113223	RST CRB CFR-12 A 22K PM5 A
3602	213810113103	RST CRB CFR-12 A 10K PM5 A
3603	232220533221	RST FUSE NFR25 A 220R PM5 A
3604	212211000401	RST MFLM MF1/2WS A 47K PM1
3606	213810113229	RST CRB CFR-12 A 22R PM5 A
3607	232220733108	RST FUSE NFR25H A 1R PM5 A
3609	212211000442	RST MFLM MF1/2WS A 4M7 PM1

3612 232220733228 RST FUSE NFR25H A 2R2 PM5 A
3613 213810113103 RST CRB CFR-12 A 10K PM5 A
3614 213810113223 RST CRB CFR-12 A 22K PM5 A
3616 213810113124 RST CRB CFR-12 A 120K PM5 A
3617 213810113223 RST CRB CFR-12 A 22K PM5 A
3618 212211000427 RST MFLM MF1/2WS A 470K PM1
3619 213810113229 RST CRB CFR-12 A 22R PM5 A
3621 213810500339 RST MOX 2W RSS S 120R PM5 B
3623 212010592167 RST MOX 2W RSS S 8K2 PM5 B
3624 212211000383 RST MFLM MF1/2WS A 10K PM1
3625 213810500119 RST MOX 5W RSS S 1R2 PM5 B
3626 212211000315 RST MFLM MF1/2WS A 10R PM1
3627 213810113101 RST CRB CFR-12 A 1R PM5 A
3629 213810113229 RST CRB CFR-12 A 22R PM5 A
3630 213810113102 RST CRB CFR-12 A 1K PM5 A
3635 213810113223 RST CRB CFR-12 A 22K PM5 A
3636 212211000375 RST MFLM MF1/2WS A 5K1 PM1
3637 212211000358 RST MFLM MF1/2WS A 1K2 PM1
3638 212211000385 RST MFLM MF1/2WS A 12K PM1
3640 213810113821 RST CRB CFR-12 A 820R PM5 A
3642 212010592158 RST MOX 2W RSS S 180R PM5 B
3644 212211000319 RST MFLM MF1/2WS A 20R PM1
3645 232224213104 RST MGL VR37 A 1K PM5 A
3646 213810113101 RST CRB CFR-12 A 1R PM5 A
3647 212211000312 RST MFLM MF1/2WS A 5R6 PM1
3648 232224213475 RST MGL VR37 A 4M7 PM5 A
3650 213810113221 RST CRB CFR-12 A 220R PM5 A
3651 232220733109 RST FUSE NFR25H A 10R PM5 A
3652 213810113182 RST CRB CFR-12 A 1K8 PM5 A
3653 213810113473 RST CRB CFR-12 A 47K PM5 A
3656 212211000312 RST MFLM MF1/2WS A 5R6 PM1
3659 213810113102 RST CRB CFR-12 A 1K PM5 A
3660 232224213434 RST MGL VR37 A 430K PM5 A
3661 213810113222 RST CRB CFR-12 A 2K2 PM5 A
3662 213810113103 RST CRB CFR-12 A 10K PM5 A
3670 213810113154 RST CRB CFR-12 A 150K PM5 A
3671 213810113154 RST CRB CFR-12 A 150K PM5 A
3674 212211000401 RST MFLM MF1/2WS A 47K PM1
3675 213810113229 RST CRB CFR-12 A 22R PM5 A
3676 213810113229 RST CRB CFR-12 A 22R PM5 A
3682 212211000404 RST MFLM MF1/2WS A 62K PM1
3683 213810113683 RST CRB CFR-12 A 68K PM5 A
3687 213810113302 RST CRB CFR-12 A 3K PM5 A
3688 213810113681 RST CRB CFR-12 A 680R PM5 A
3691 212211000322 RST MFLM MF1/2WS A 27R PM1
3692 213810113473 RST CRB CFR-12 A 47K PM5 A
3693 213810113123 RST CRB CFR-12 A 12K PM5 A
3694 213810113109 RST CRB CFR-12 A 10R PM5 A
3695 213810113152 RST CRB CFR-12 A 1K5 PM5 A
3696 212211000324 RST MFLM MF1/2WS A 39R PM1
3697 213810113479 RST CRB CFR-12 A 47R PM5 A
3698 213810113103 RST CRB CFR-12 A 10K PM5 A
3811 213810113222 RST CRB CFR-12 A 2K2 PM5 A
3812 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3813 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3814 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3815 213810113221 RST CRB CFR-12 A 220R PM5 A
3816 213810113391 RST CRB CFR-12 A 390R PM5 A
3818 213810113101 RST CRB CFR-12 A 1R PM5 A
3820 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3821 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3822 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3823 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3825 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3827 213810113103 RST CRB CFR-12 A 10K PM5 A
3828 213810113101 RST CRB CFR-12 A 1R PM5 A
3829 213810113101 RST CRB CFR-12 A 1R PM5 A
3830 213810113473 RST CRB CFR-12 A 47K PM5 A
3831 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3833 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3834 213810113332 RST CRB CFR-12 A 3K3 PM5 A
3835 213810113222 RST CRB CFR-12 A 2K2 PM5 A
3836 212211000396 RST MFLM MF1/2WS A 33K PM1 A
3837 213810113222 RST CRB CFR-12 A 2K2 PM5 A
3838 213810113101 RST CRB CFR-12 A 1R PM5 A
3839 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3840 213810113333 RST CRB CFR-12 A 33K PM5 A
3841 213810113101 RST CRB CFR-12 A 1R PM5 A
3842 213810113101 RST CRB CFR-12 A 1R PM5 A
3843 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3844 213810113103 RST CRB CFR-12 A 10K PM5 A
3845 213810113103 RST CRB CFR-12 A 10K PM5 A
3846 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3847 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3848 213810113103 RST CRB CFR-12 A 10K PM5 A
3849 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3851 213810113103 RST CRB CFR-12 A 10K PM5 A
3852 213810113683 RST CRB CFR-12 A 68K PM5 A
3853 213810113103 RST CRB CFR-12 A 10K PM5 A
3854 213810113334 RST CRB CFR-12 A 330K PM5 A
3855 213810113221 RST CRB CFR-12 A 220R PM5 A
3857 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3858 213810113103 RST CRB CFR-12 A 10K PM5 A
3859 213810113101 RST CRB CFR-12 A 1R PM5 A
3862 213810113274 RST CRB CFR-12 A 270K PM5 A
3869 213810113333 RST CRB CFR-12 A 33K PM5 A
3879 213810113101 RST CRB CFR-12 A 1R PM5 A
3880 213810113102 RST CRB CFR-12 A 1K PM5 A

5001 243853598018 IND FXD BEAD EMI A 2U5 PM20 B
5007▲313816879991 COI DEGAUS
5108▲313816872811 LINE FILTER(143Y1R5)
5113▲313818874321 TFM SMT LAYER SRW35EC-T80V118
5123 242253600039 IND FXD TSL0808 S 180U PM10 A
5124 242253600036 IND FXD TSL0808 S 1U PM10 A
5125 242253600039 IND FXD TSL0808 S 180U PM10 A
5501 242253597249 IND FXD SP0406 A 1U PM10 B
5601 313818874161 COIL LINCOR 4.4UH HL2455H-077N
5603 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5606 313817874761 BRIDGE COIL 110UH PM6
5607 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5609 242253600037 IND FXD TSL0808 S 37U PM5 A
5610 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5611 242253597416 IND FXD SP0406 A 33U PM10 B
5612▲313818874261 TFM LOT LAYER 11MM WIRE
5615 313818874181 TFM SIG DRIVER SRW16UW-T12H2
5616 313818871121 DRUM CHOKE
5617 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5671 313816877381 DAF XFMR (SRW16EC-T119V3)



6101 932215736682 BRIDGE GBU4K (PAJI) B
6103 933723420133 DIO REC BYD33J A (PHSE) A
6106 933751660683 DIO REC RGP10D A (GI) R
6107 933741030133 DIO REC BYD33M A (PHSE) A
6108 319801010070 DIO SIG BAV21 (COL) A
6109 319801010010 DIO SIG 1N4148 (COL) A
6111 319801010010 DIO SIG 1N4148 (COL) A
6118 319801010010 DIO SIG 1N4148 (COL) A
6131 933730980133 DIO REC BYV36C A (PHSE) A
6133 933730980133 DIO REC BYV36C A (PHSE) A
6135 932210346673 DIO REC SBYV27-2 A (GI) A
6136 933751660683 DIO REC RGP10D A (GI) R
6138 933957760683 DIO REC SB140 A (GI) R
6141 319801010010 DIO SIG 1N4148 (COL) A
6142 933723420133 DIO REC BYD33J A (PHSE) A
6143 319801010010 DIO SIG 1N4148 (COL) A
6144 319801010010 DIO SIG 1N4148 (COL) A
6146 319801010010 DIO SIG 1N4148 (COL) A
6147 933117760133 DIO REG BZX79-C7V5 A (PHSE) A
6148 319801028280 DIO REG BZX79-C8V2 A COLA

6401 932210346673 DIO REC SBYV27-2 A (GI) A
6511 933723420133 DIO REC BYD33J A (PHSE) A
6513 319801010010 DIO SIG 1N4148 (COL) A
6515 319801010010 DIO SIG 1N4148 (COL) A
6516 933957760683 DIO REC SB140 A (GI) R
6517 319801010010 DIO SIG 1N4148 (COL) A
6518 319801010010 DIO SIG 1N4148 (COL) A
6519 319801010010 DIO SIG 1N4148 (COL) A
6600 932216961687 DIO REC DMV15M (ST) L
6601 319801010070 DIO SIG BAV21 (COL) A
6602 319801021590 DIO REG BZX79-C15 A COLA
6603 932205787683 DIO REC EGP20G A (GI) R
6604 319801010070 DIO SIG BAV21 (COL) A
6605 319801010070 DIO SIG BAV21 (COL) A
6606 933723420133 DIO REC BYD33J A (PHSE) A
6609 319801010010 DIO SIG 1N4148 (COL) A
6612 932210346673 DIO REC SBYV27-2 A (GI) A
6615 319801010010 DIO SIG 1N4148 (COL) A
6616 319801010070 DIO SIG BAV21 (COL) A
6619 933723420133 DIO REC BYD33J A (PHSE) A
6620 933497950683 DIO REC RGP10J A (GI) R
6625 933166850133 DIO REG BZX79-B8V2 A (PHSE) A
6626 933493960683 DIO REC RGP10G A (GI) R
6627 933751650683 DIO REC RGP15K A (GI) R

7101 932215891687 FET POW STP6NC60 (ST) L
7102 935267356112 IC TEA1507P/N1 (PHSE) L
7103 933953420676 TRA SIG TBC338-40 (TOSJ) A
7111▲932214014667 OPT CP TCET1103(G) (VISH) L
7112 933771100686 IC TL431CLP S(MOTA) R
7113 933953420676 TRA SIG TBC338-40 (TOSJ) A
7114 932208234676 IC L78L05ACZ (ST) A
7115 933826850126 THYRIS BT169B (PHSE) A
7116 932209011673 TRA SIG BC548C (KEC0) A
7117 932209011673 TRA SIG BC548C (KEC0) A
7401 933922940682 IC TDA8172 (ST) L
7501 935267455112 IC TDA4841PS/V3 (PHSE) L
7502 319802043020 TRA SIG BF423 (COL) A
7503 319802043020 TRA SIG BF423 (COL) A
7506 932209011673 TRA SIG BC548C (KEC0) A
7601 933953420676 TRA SIG TBC338-40 (TOSJ) A
7602 933953410676 TRA SIG TBC328-40 (TOSJ) A
7603 932214234687 FET POW SFP9634 (FSC0) L
7604 932209011673 TRA SIG BC548C (KEC0) A
7605 934003960126 FET SIG BSN254A (PHSE) A
7606 934040790127 TRA POW BU4522AF (PHSE) L
7607 932209011673 TRA SIG BC548C (KEC0) A
7610 932214360687 FET POW IRF630M (ST) L
7611 932210142676 TRA SIG BC558C (KEC0) A
7612 932209011673 TRA SIG BC548C (KEC0) A
7613 931101054687 TRA POW TIP122 (ST) L
7615 933953420676 TRA SIG TBC338-40 (TOSJ) A
7616 932203168687 FET POW IRF640 (ST) L
7621 933984890682 IC LM358N (ST) L
7682 933221960126 TRA SIG BC638 (PHSE) A
7683 933221930126 TRA SIG BC637 (PHSE) A
7685 934025870126 TRA SIG MPSA44 (PHSE) A
7701 932218451682 IC STV9556 (ST) L
7761 932209011673 TRA SIG BC548C (KEC0) A
7801 823827443671 CPU,IC 6148-K420PH-53A
7802 932210142676 TRA SIG BC558C (KEC0) A
7803 932212662682 IC M24C16-BN6 (ST) L
7805 932210142676 TRA SIG BC558C (KEC0) A
7806 932210142676 TRA SIG BC558C (KEC0) A
7807 932210142676 TRA SIG BC558C (KEC0) A
7809 932210142676 TRA SIG BC558C (KEC0) A

Spare Parts List (Continued)

1052 Video PCB ASSY(313817863001)(PHL)

1052 313817863011 VIDEO PCB ASSY(CPT)
1052 313817863021 VIDEO PCB ASSY(LG)

2301 225279508453 CER2 DC Y5V 50V 1N P8020 A
2302 225279508453 CER2 DC Y5V 50V 1N P8020 A
2303 225279508453 CER2 DC Y5V 50V 1N P8020 A
2304 225232512104 CER2 ML X7R 50V S 1N PM10 A
2305 225232512104 CER2 ML X7R 50V S 1N PM10 A
2306 225232512104 CER2 ML X7R 50V S 1N PM10 A
2312 225232512104 CER2 ML X7R 50V S 1N PM10 A
2322 225232512103 CER2 ML X7R 50V S 10N PM10 A
2323 225265508033 CER2 DC Z5V 50V S 10N P8020 A
2324 225250508015 CER1 DC NP0 50VS 1P PM5 A
2327 225250508015 CER1 DC NP0 50VS 1P PM5 A
2701 203803513304 ELCAP RGA 25V S 1U PM20 A
2702 203803513304 ELCAP RGA 25V S 1U PM20 A
2703 225232512104 CER2 ML X7R 50V S 1N PM10 A
2719 203830250149 CAP POL MEF250V S 47N PM10 A
2721 203803513803 ELCAP RGA 160V S 10U PM20 B
2722 225261808311 CER2 DC Y5P 5V S 330P PM10 A
2725 242254944346 SURGE PROTECT DSP-201M-D04F
2733 242254944346 SURGE PROTECT DSP-201M-D04F
2753 242254944346 SURGE PROTECT DSP-201M-D04F
2760 225260114416 CER2 DC X7R 1KVS 470P PM10 A
2762 203803511219 ELCAP REA 16V S 220U PM20 A
2763 225261508421 CER2 DC Y5P 50V S 4N7 PM10 A
2771 225232512104 CER2 ML X7R 50V S 1N PM10 A
2772 225261808311 CER2 DC Y5P 5V S 330P PM10 A
2773 203803513304 ELCAP RGA 25V S 1U PM20 A
2777 203803513304 ELCAP RGA 25V S 1U PM20 A
2778 203803513304 ELCAP RGA 25V S 1U PM20 A
2781 225261808011 CER2 DC Y5P 5V S 1P PM10 A
2782 225261808211 CER2 DC Y5P 5V S 220P PM10 A
2784 222274390061 CER2 DC Z5U 2KVS 10N PM20 B
2785 225260508121 CER2 DC X7R 50VS 1N5 PM10 A
2786 225260508121 CER2 DC X7R 50VS 1N5 PM10 A
2787 225260508121 CER2 DC X7R 50VS 1N5 PM10 A
2788 203803511219 ELCAP REA 16V S 220U PM20 A

3301 231291517509 RST MFLM MBB0207 A 75R PM1
3302 231291517509 RST MFLM MBB0207 A 75R PM1
3303 231291517509 RST MFLM MBB0207 A 75R PM1
3305 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3306 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3309 213810113102 RST CRB CFR-12 A 1K PM5 A
3310 213810113102 RST CRB CFR-12 A 1K PM5 A
3311 213810113102 RST CRB CFR-12 A 1K PM5 A
3312 213810113339 RST CRB CFR-12 A 33R PM5 A
3313 213810113339 RST CRB CFR-12 A 33R PM5 A
3314 213810113339 RST CRB CFR-12 A 33R PM5 A
3315 213810113101 RST CRB CFR-12 A 1R PM5 A
3316 213810113101 RST CRB CFR-12 A 1R PM5 A
3317 213810113101 RST CRB CFR-12 A 1R PM5 A
3325 213810113103 RST CRB CFR-12 A 10K PM5 A
3326 213810113102 RST CRB CFR-12 A 1K PM5 A
3327 213810113562 RST CRB CFR-12 A 5K6 PM5 A
3328 213810113562 RST CRB CFR-12 A 5K6 PM5 A
3329 213810113562 RST CRB CFR-12 A 5K6 PM5 A
3330 213810113105 RST CRB CFR-12 A 1M PM5 A
3331 213810113332 RST CRB CFR-12 A 3K3 PM5 A
3332 213810113101 RST CRB CFR-12 A 1R PM5 A
3333 213810113101 RST CRB CFR-12 A 1R PM5 A
3334 213810113151 RST CRB CFR-12 A 150R PM5 A
3335 213810113101 RST CRB CFR-12 A 1R PM5 A
3336 212211000311 RST MFLM MF1/2WS A 4R7 PM1
3337 213810113101 RST CRB CFR-12 A 1R PM5 A
3338 213810113101 RST CRB CFR-12 A 1R PM5 A
3339 213810113101 RST CRB CFR-12 A 1R PM5 A
3340 213810100369 RST JUMP CR-12 A MAX 0R01 A
3341 213810100369 RST JUMP CR-12 A MAX 0R01 A
3342 213810100369 RST JUMP CR-12 A MAX 0R01 A
3343 213810113332 RST CRB CFR-12 A 3K3 PM5 A
3703 213811273519 RST CRB CFR-25 A 51R PM5 A
3709 212211000324 RST MFLM MF1/2WS A 39R PM1
3711 212211000311 RST MFLM MF1/2WS A 4R7 PM1
3712 212211000324 RST MFLM MF1/2WS A 39R PM1
3713 213811273519 RST CRB CFR-25 A 51R PM5 A
3716 213811273519 RST CRB CFR-25 A 51R PM5 A
3721 212211000332 RST MFLM MF1/2WS A 120R PM1
3728 213810113181 RST CRB CFR-12 A 180R PM5 A
3731 212211000332 RST MFLM MF1/2WS A 120R PM1
3738 213810113181 RST CRB CFR-12 A 180R PM5 A
3751 212211000332 RST MFLM MF1/2WS A 120R PM1
3758 213810113181 RST CRB CFR-12 A 180R PM5 A
3761 213810113102 RST CRB CFR-12 A 1K PM5 A
3762 213810113103 RST CRB CFR-12 A 10K PM5 A
3763 213810113332 RST CRB CFR-12 A 3K3 PM5 A
3764 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3765 213810113682 RST CRB CFR-12 A 6K8 PM5 A
3766 231291517509 RST MFLM MBB0207 A 75R PM1
3767 213810113472 RST CRB CFR-12 A 4K7 PM5 A
3771 212211000361 RST MFLM MF1/2WS A 1K5 PM1
3772 212010128153 RST CMP ERC12 A 15K PM10 A
3776 213810113479 RST CRB CFR-12 A 47R PM5 A

5721 242253597725 IND FXD SP0305 A 0U22 PM20 B
5732 242253597725 IND FXD SP0305 A 0U22 PM20 B
5752 242253597725 IND FXD SP0305 A 0U22 PM20 B
5761 243853598025 IND FXD BEAD EMI 1MHZ 60R R
5771 243853598028 IND FXD BEAD EMI 1MHZ 75R R
5772 243853598025 IND FXD BEAD EMI 1MHZ 60R R
5779 242253597608 IND FXD SPT0305 A 1U8 PM10 R
5781 242253600036 IND FXD TSL0808 S 1U PM10 A

6301 319801025680 DIO REG BZX79-C5V6 A COL A
6302 319801025680 DIO REG BZX79-C5V6 A COL A
6303 319801025680 DIO REG BZX79-C5V6 A COL A
6304 319801025680 DIO REG BZX79-C5V6 A COL A
6305 319801025680 DIO REG BZX79-C5V6 A COL A
6722 319801010070 DIO SIG BAV21 (COL) A
6723 319801028280 DIO REG BZX79-C8V2 A COL A
6724 319801010070 DIO SIG BAV21 (COL) A
6725 319801010010 DIO SIG 1N4148 (COL) A
6732 319801010070 DIO SIG BAV21 (COL) A
6734 319801010070 DIO SIG BAV21 (COL) A
6752 319801010070 DIO SIG BAV21 (COL) A
6754 319801010070 DIO SIG BAV21 (COL) A
6771 933751660683 DIO REC RGP10D A (GI) R

7301 932218450682 IC STV9211 (ST) L
7304 932218565682 IC NT68275-031 (NOVA) L
7322 319802043310 TRA SIG PH2369 (COL) A
7601 933953420676 TRA SIG TBC338-40 (TOSJ) A
7602 933953410676 TRA SIG TBC328-40 (TOSJ) A

1053 CONTROL PCB ASSY

1053 313817862711 CONTROL PCB ASSY

3891 212211000409 RST MFLM MF1/2WS A 1K PM1 A
3892 212211000403 RST MFLM MF1/2WS A 56K PM1 A
3893 212211000374 RST MFLM MF1/2WS A 4K7 PM1 A
3894 212211000387 RST MFLM MF1/2WS A 15K PM1 A
3895 212211000393 RST MFLM MF1/2WS A 24K PM1 A

6891 932214603682 LED VSL-3WYGW

Repair Flow Chart

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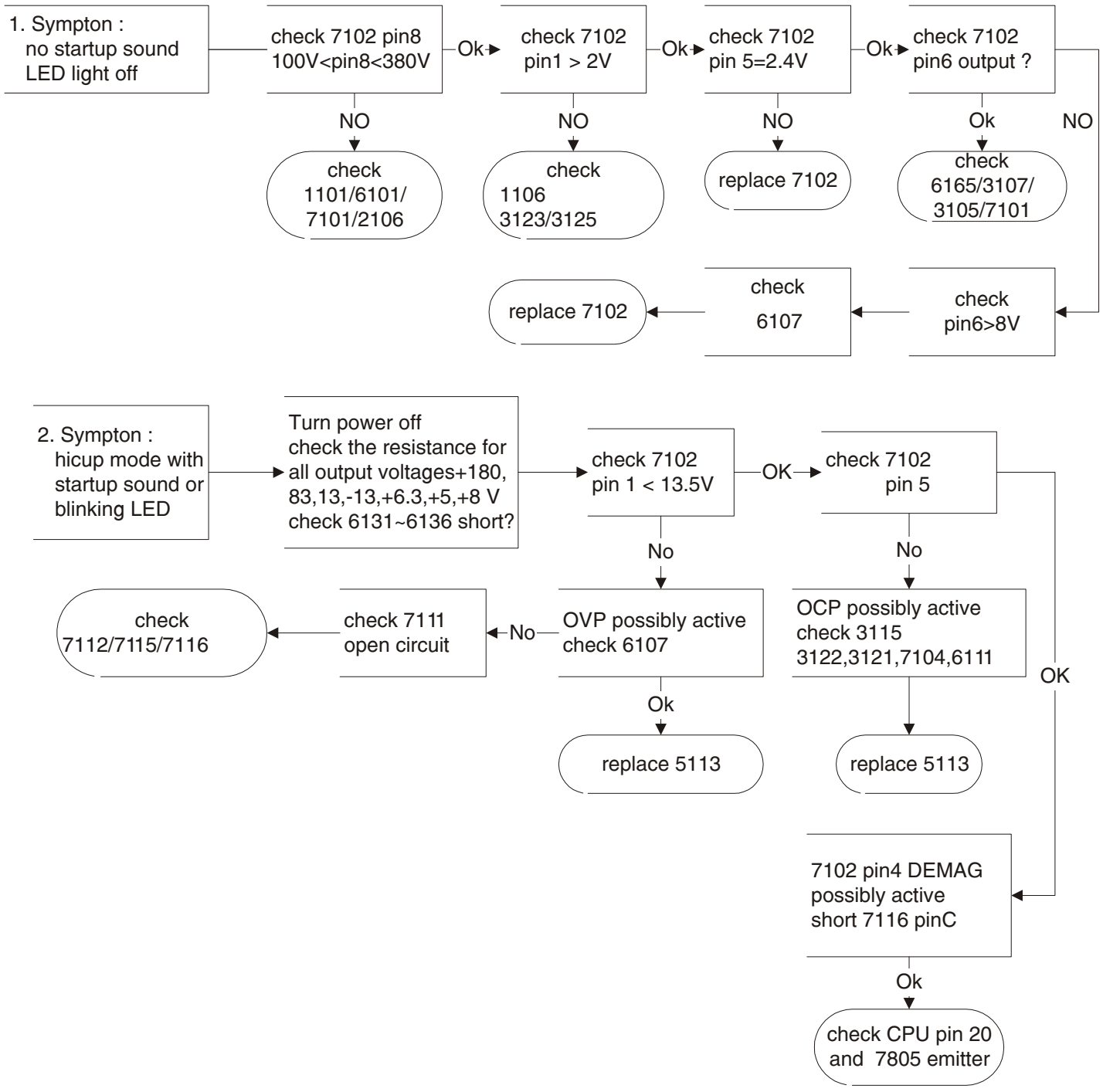
A. Power Supply Failure



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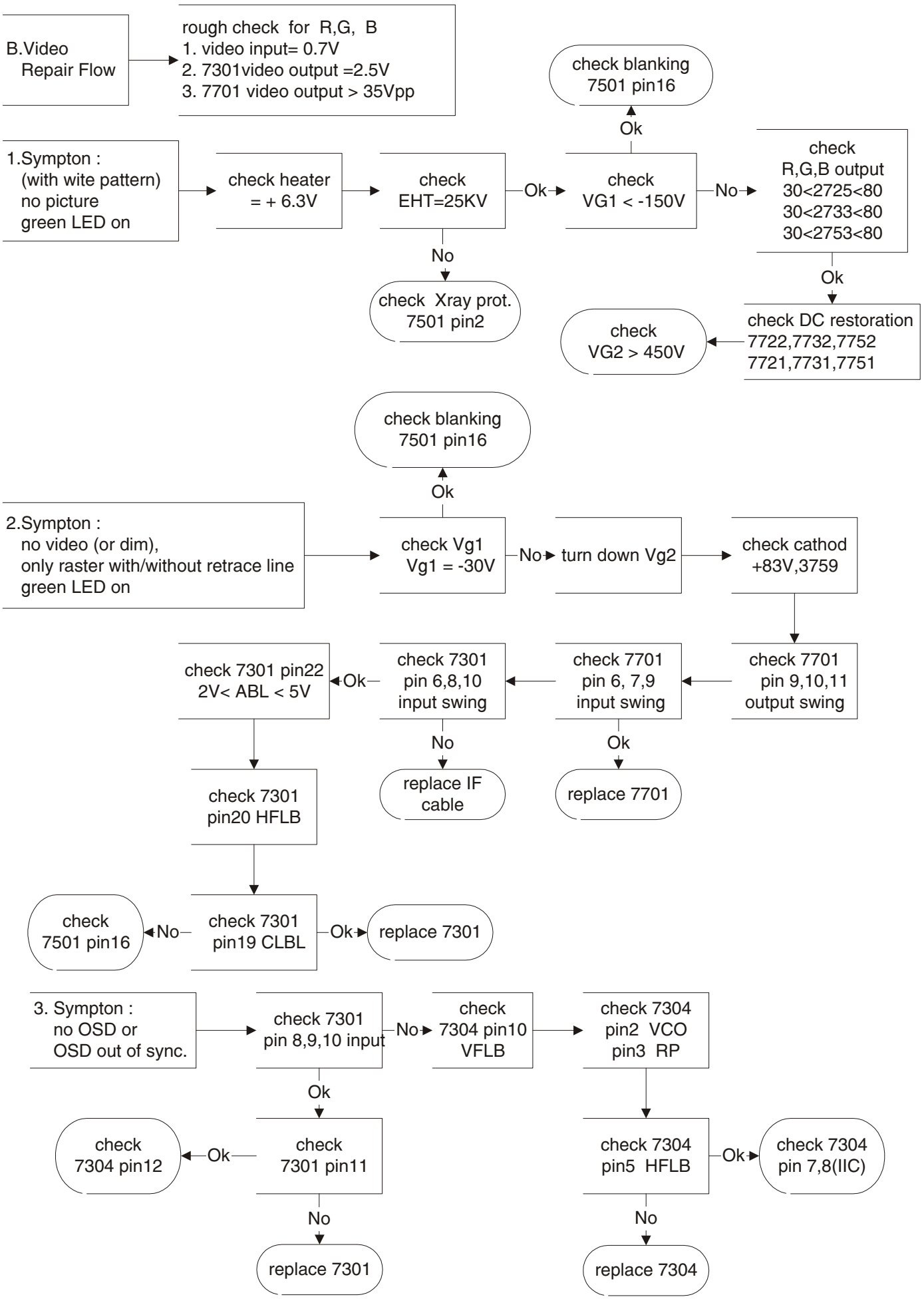
Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

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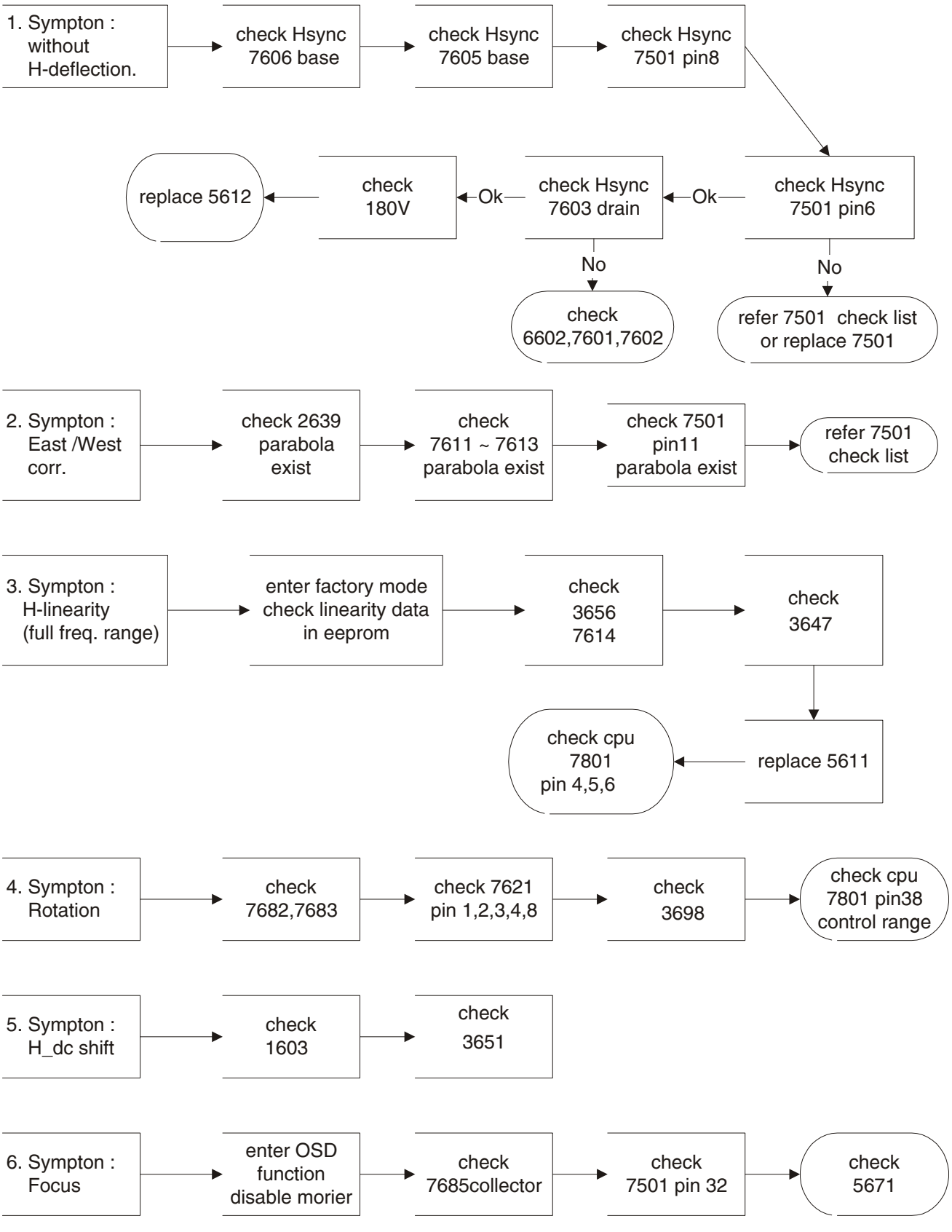
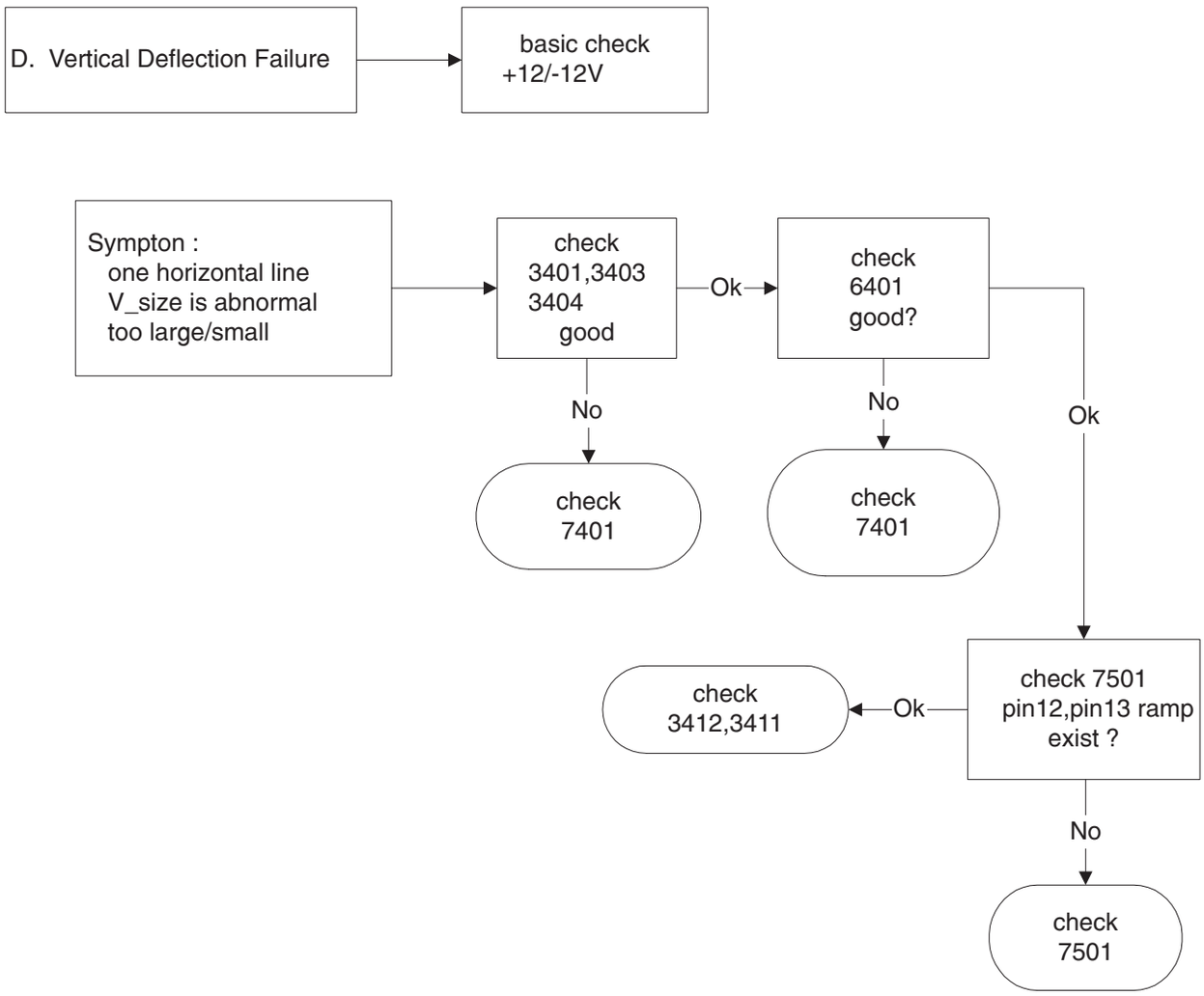
C. Horizontal deflection output repair flow :



Repair Flow Chart (Continued)



Repair Flow Chart (Continued)

E. CPU check list → Basic Check → check cpu pin6= 5V
pin9/pin8=12MhZ
pin7=gnd

31. H-EHT → H size compensation for the load variance

10,11, (Q2,Q1) S-cap switch → check Q1-Q2
pin10~11
low : 0
hi :1

70K S-CAPACITOR SWITCH TABLE

Hor. Freq.(KHz)	Q1	Q2
< 27.00	0	0
27.50-33.24	0	0
33.24-36.51	0	0
36.51-42.38	1	0
42.38-45.07	1	0
45.07-53.10	0	1
53.10-58.25	0	1
58.25-61.89	1	1
61.89-66.00	1	1
> 66.00	1	1

33,34,40,41 Hsync / Vsync → check sync.
Hsync_in=pin40
Vsync_in=pin41
Hsync_out=pin34
Vsync_out=pin33 →
1 . Normal
Fhout=Fhin
Fvout=Fvin
2. Self test
Hout=48Khz
Fvout=72Hz
3.sync out of rang
Fhin>72.8kHz,<28kHz
Fvin>168Hz, <45Hz

18. Hunlock → check pin18
normal=Hi
blank=low

19. Blanking (mute) → check pin19
normal : low
change timing : Hi

20, 27,28 P.S. LED → pin 27 STBY
pin 20 OFF →

power saving	pin27	pin20
normal	hi	hi
standby	low	hi
off	low	low

22. Degauss → check
active=hi
no active=low

5, Reset → check
from 5V to 0V → check
2806 / 3834

Repair Flow Chart (Continued)

38. Rotation → check output from 0V to 5V

3. ABL-CON → check output from 0V to 5V

23. Keypad → check key Enter,Up,Down,Left,Right keys → check 3836, 2822 3871~3875

24. Selftest →
check pin24
1.no H/V sync & IF cable pin5 floating - show msg.
2.H/V sync exist & IF cable pin5 to ground - normal
3.H/V sync non-exist & IF cable pin5 to gnd -power saving
4.After 1871&1872 pressed on, then power on (1106) with IFcable pin5 -factory mode
5.After 1871&1872 pressed on, then power on (1106) without IFcable pin5 -burn in mode

25,26. DDC bus → check idle status sda=pin25=hi scl=pin26=hi → check 7804

7804 has been reserved for hardware DDC

31,32. IIC bus → check idle status sda=pin32=hi scl=pin31=hi →
check
7803 M24C16
7501 TDA4841
7304 MTV018-27
7301 TDA4886A

30, VCLK EEPROM →
check 7803 pin 7
Low : write enable
Hi : write disable

4. H-linearity → check output from 0V to 5V

Repair Flow Chart (Continued)

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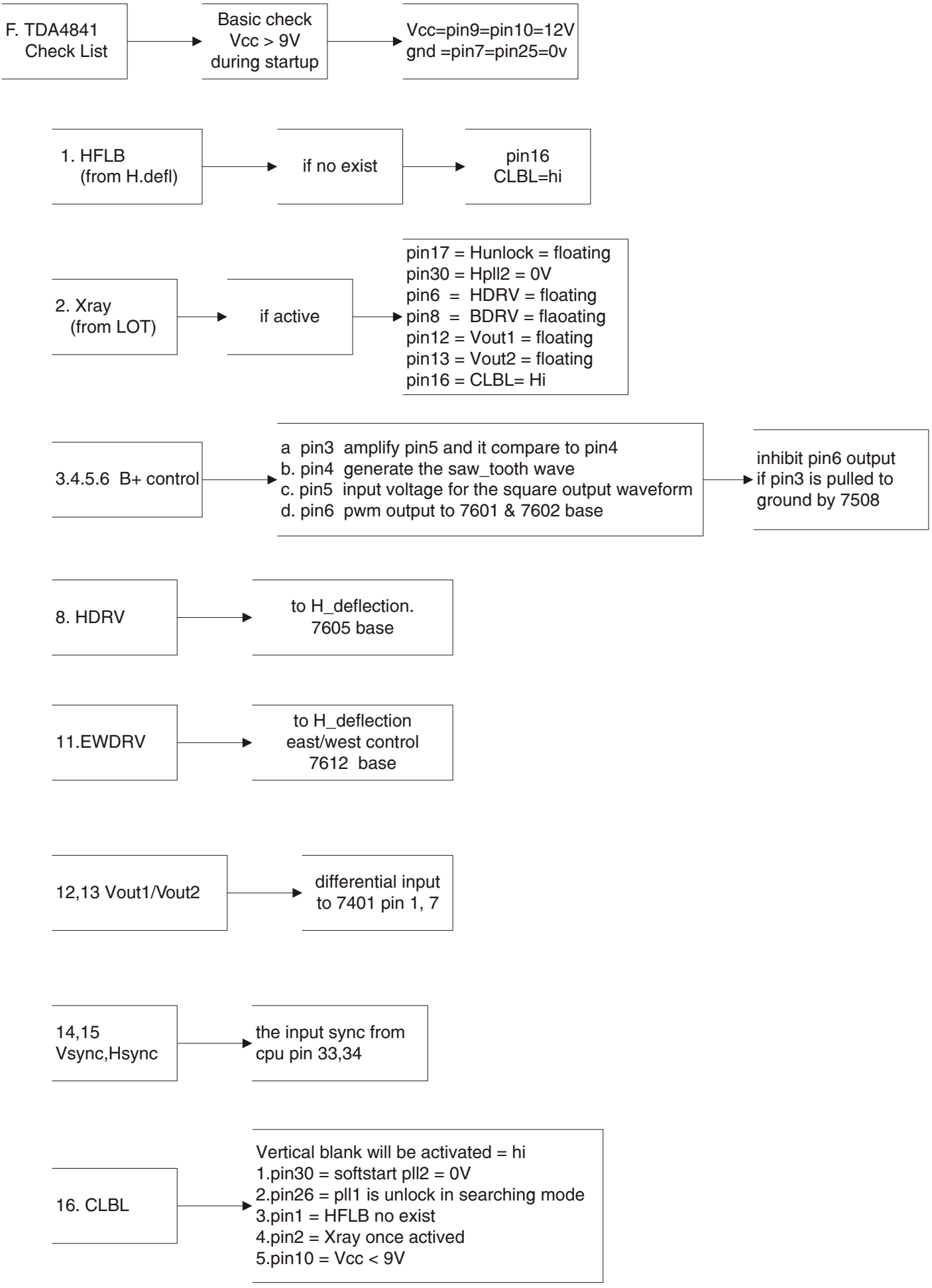
F. TDA4841 Check List
Basic check Vcc > 9V during startup
Vcc=pin9=pin10=12V gnd =pin7=pin25=0v
1. HFLB (from H.defl)
if no exist
pin16 CLBL=hi
2. Xray (from LOT)
if active
pin17 = Hunlock = floating
pin30 = Hpll2 = 0V
pin6 = HDRV = floating
pin8 = BDRV = flaoating
pin12 = Vout1 = floating
pin13 = Vout2 = floating
pin16 = CLBL= Hi
3.4.5.6 B+ control
a pin3 amplify pin5 and it compare to pin4
b. pin4 generate the saw_tooth wave
c. pin5 input voltage for the square output waveform
d. pin6 pwm output to 7601 & 7602 base
inhibit pin6 output if pin3 is pulled to ground by 7508
8. HDRV
to H_deflection. 7605 base
11.EWDRV
to H_deflection east/west control 7612 base
12,13 Vout1/Vout2
differential input to 7401 pin 1, 7
14,15 Vsync,Hsync
the input sync from cpu pin 33,34
16. CLBL
Vertical blank will be activated = hi
1.pin30 = softstart pll2 = 0V
2.pin26 = pll1 is unlock in searching mode
3.pin1 = HFLB no exist
4.pin2 = Xray once actived
5.pin10 = Vcc < 9V

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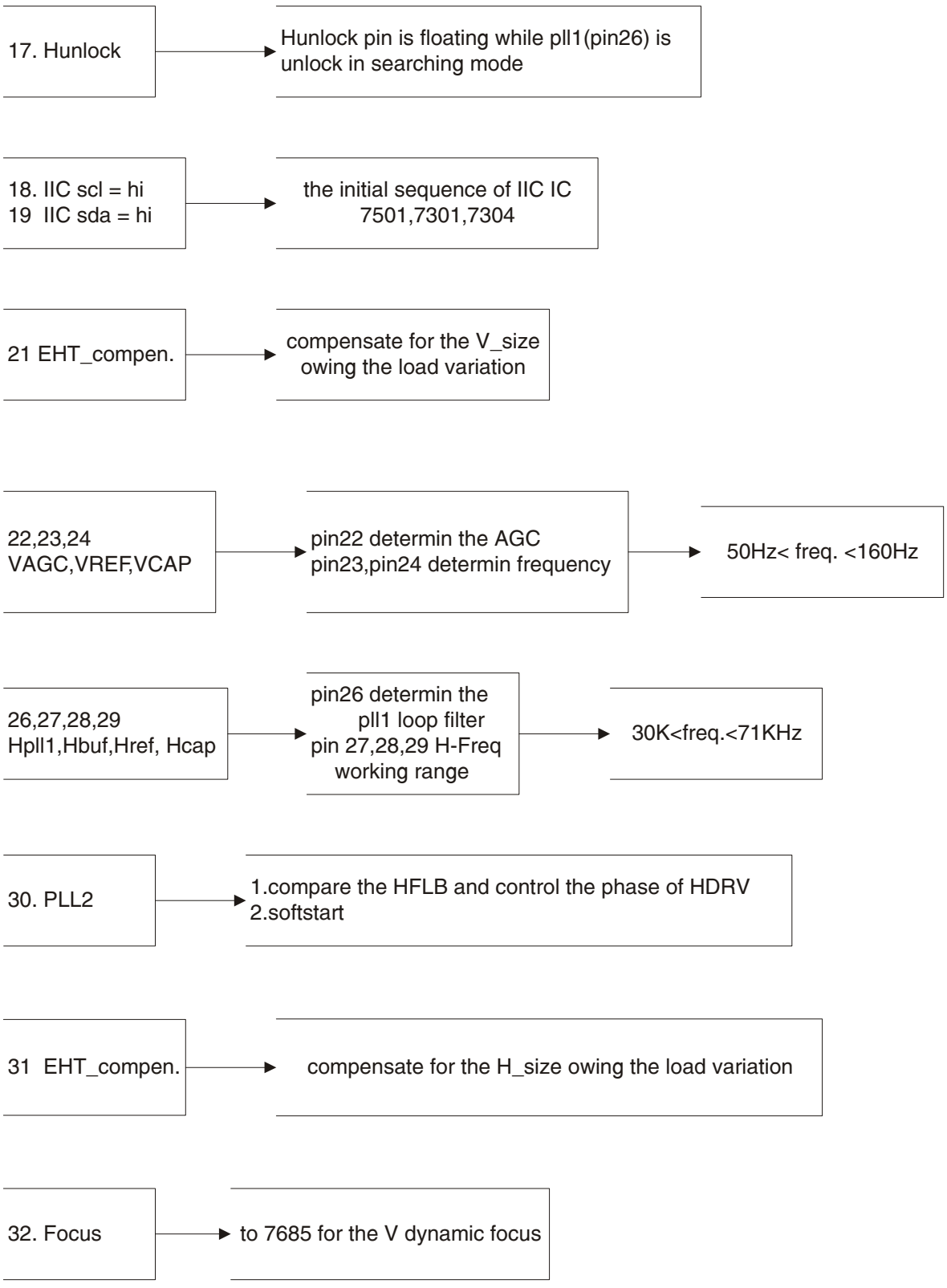
Repair Flow Chart (Continued)


17. Hunlock
Hunlock pin is floating while pll1(pin26) is unlock in searching mode
18. IIC scl = hi
19 IIC sda = hi
the initial sequence of IIC IC 7501,7301,7304
21 EHT_compen.
compensate for the V_size owing the load variation
22,23,24
VAGC,VREF,VCAP
pin22 determin the AGC
pin23,pin24 determin frequency
50Hz< freq. <160Hz
26,27,28,29
Hpll1,Hbuf,Href, Hcap
pin26 determin the pll1 loop filter
pin 27,28,29 H-Freq working range
30K<freq.<71KHz
30. PLL2
1.compare the HFLB and control the phase of HDRV
2.softstart
31 EHT_compen.
compensate for the H_size owing the load variation
32. Focus
to 7685 for the V dynamic focus

PHILIPS

17 107E4 ;70KHz General Specification (Sheet 590)

==========

FEATURES / BENEFITS

- EXTREMELY HIGH MTBF (OVER 75K HRS, EXCLUDING CRT)

- PROFESSIONAL LOOK, WITH NON-FLAMMABLE CABINET (94V-0)

- USER'S CONTROLS
  . FRONT MOUNTED CONTROLS FOR EASY ACCESS

- BETTER DISPLAY PERFORMANCE
  . FINER CRT DOT PITCH (0.27 MM)
  . FULL SCREEN SIZE APPLICATION
  . REAL MULTI-FREQ.

- POWER SAVING MANAGEMENT SYSTEM

- MAXIMIZED CONTAINER LOADING

- VESA DDC2B

- LOW EMISSION MPRII / TCO99/TCO95 (Optional)

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GENERAL PRODUCT SPECIFICATION

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CLASS NO.	17" M32 GS3 107E4-70K CMTR						
	TYPE : 107E41/00C	8639 000 12205					
2002-04-26	BRAND : PHILIPS						
NAME JIM LIN	SUPERS.	29	590 — 2	10		A4	
TY / CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

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GENERAL PRODUCT SPECIFICATION

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1.0 Introduction

This document is related to the 17" AUTOSCAN (VGA above and Max. resolution 1280X1024 by 60HZ refresh) color monitor for world-wide destination.

2.0 General description

The AUTOSCAN analog color monitor is specified as a display peripheral within an IBM PC, PS/2 ,VGA and advance VGA compatible system.

The AUTOSCAN analog color monitor is to operate at horizontal line rates between 30 to 70 KHz and refreshment rate between 50 to 160 Hz, can be applied to all RGB analog computers within this scanning frequencies.

The AUTOSCAN analog color monitor is intended to be a finished product, basically a display device mounted inside a plastic enclosure which provides the aesthetic mechanical, ergonomic and safety requirements.

2.1 General condition

The unit will produce a usable image after switching-on, measurements are to be carried out with a full stabilized set after 30 minutes warm-up at room temperature of 25 C. Repetitive power on/off cycles are allowed though should be avoided within 4 sec.

3.0 Electrical characteristics

3.1 Signal interface

The AUTOSCAN analog color display has an analog video interface to operates at a multi-frequencies timing in several display modes.

3.1.1 Input requirements

A. Input signals
Video : Analog level
Sync. : Separated sync. with TTL level
Polarity : Positive or negative

B. Signal input level
Video : 0.7 Vp-p 75 ohms (for individual of R,G and B signals must not deviate 0.015 Vp-p from each other for balance of white pattern)
Sync : TTL level
(between 0 and 0.6 V to be considered as low level ,between 2.3 and 5.0 V as high level)

C. Impedance
Video : Terminated with 75 ohms
Sync : Terminated with 4.7K ohms pull down resistors.

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3.1.2 Signals input

The input video signals are applied to the display device through a video cable which is fixed to the monitor (standard cable length 1.5M).

Video input cable :
15 pin D-shell male connector type AMP 211350-1(3 rows) or equivalent, with pin assignment as follows:

Pin assignment of 15P D-SUB connector

Pin nbr.	Assignment
P1	Red video input
P2	Green video input
P3	Blue video input
P4	GND
P5	For selftest (PC Ground)
P6	Red video ground
P7	Green video ground
P8	Blue video ground
P9	Not connected -- No pin
P10	Sync ground
P11	GND
P12	Bi-directional Data (SDA)
P13	H SYNC
P14	V SYNC (VCLK)
P15	Data clock (SCL)

3.1.3 Factory preset modes:

Factory preset modes: 8

	Resolution	H. freq.	V. freq.	H.	V.
1.	720 x 400	31.5 KHz	70Hz (VGA)	-	+
2.	640 x 480	31.47 KHz	60Hz (VGA)	-	-
3.	640 x 480	43.3 KHz	85Hz (VESA)	-	-
4.	800 x 600	46.9 KHz	75Hz (VESA)	+	+
5.	800 x 600	53.674 KHz	85Hz (VESA)	+	+
6.	1024 x 768	60.0 KHz	75Hz (VESA)	+	+
7.	1024 x 768	68.7 KHz	85Hz (VESA)	+	+
8.	1280 x 1024	64.0 KHz	60Hz (VESA)	+	+

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Factory preload modes: 14

	Resolution	H. freq.	V. freq.
9.	640 x 350	31.5 KHz	70Hz
10.	640 x 350	37.9 KHz	85Hz
11.	640 x 480	37.5 KHz	75Hz
12.	640 x 480	37.9 KHz	72.8Hz
13	640 x 480	50.6 KHz	100Hz
14.	720 x 400	37.9 KHz	85Hz
15.	800 x 600	37.9 KHz	60Hz
16.	800 x 600	48.1 KHz	72Hz
17.	800 x 600	63.9 KHz	100Hz
18	.832 x 624	49.7 KHz	75Hz
19.	1024x 468	48.4 KHz	60Hz
20.	1024x 768	56.5 KHz	70Hz
21.	1152x 864	67.5 KHz	75Hz
22.	1280x 960	60 KHz	60Hz

3.2 Timing requirements

The AUTOSCAN color monitor must be capable of displaying standard resolutions within the vertical(refresh) frequency range of 50 to 160 Hz and horizontal scan range of 30 - 70 KHz.

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TIMING FOR GS3 107E4 70K COLOR MONITOR

REFERENCE PATTERN GENERATOR : CHROMA 2135

* According VESA version 1.0 release 0.6p

Factory preset modes

TABLE 1: 31.469 KHz/70.087 Hz, 720 X 400, pixel=28.325 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 31.774 us	Total size	= 14.268 ms
Display size	= 25.422 us	Display size	= 12.711 ms
Rear porch	= 1.907 us	Rear porch	= 1.112 ms
Sync width	= 3.813 us	Sync width	= 0.064 ms
Sync.polarity	= -	Sync.polarity	= +

TABLE 2: 31.469KHz/59.940 Hz, 640 X 480, pixel=25.175 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 31.778 us	Total size	= 16.683 ms
Display size	= 25.422 us	Display size	= 15.253 ms
Rear porch	= 1.907 us	Rear porch	= 1.049 ms
Sync width	= 3.813 us	Sync width	= 0.064 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 3: 43.269KHz/85.008 Hz, 640 X 480, pixel=36.000 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 23.111 us	Total size	= 11.764 ms
Display size	= 17.778 us	Display size	= 11.093 ms
Rear porch	= 2.222 us	Rear porch	= 0.578 ms
Sync width	= 1.556 us	Sync width	= 0.069 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 4: 46.875 KHz/75 Hz, 800 X 600, pixel=49.500 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 21.333 us	Total size	= 13.333 ms
Display size	= 16.162 us	Display size	= 12.800 ms
Rear porch	= 3.232 us	Rear porch	= 0.448 ms
Sync width	= 1.616 us	Sync width	= 0.064 ms
Sync.polarity	= +	Sync.polarity	= +

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GENERAL PRODUCT SPECIFICATION

TABLE 5: 53.674 KHz/85.061 Hz, 800 X 600, pixel=56.250 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 18.631 us	Total size	= 11.756 ms
Display size	= 14.222 us	Display size	= 11.179 ms
Rear porch	= 2.702 us	Rear porch	= 0.503 ms
Sync width	= 1.138 us	Sync width	= 0.056 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 6: 60.03 KHz/75 Hz, 1024 X 768, pixel=78.750 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 16.660 us	Total size	= 13.328 ms
Display size	= 13.003 us	Display size	= 12.795 ms
Rear porch	= 2.235 us	Rear porch	= 0.466 ms
Sync width	= 1.219 us	Sync width	= 0.050 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 7: 63.981 KHz/60 Hz, 1280 X 1024, pixel=108 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 15.630 us	Total size	= 16.661 ms
Display size	= 11.852 us	Display size	= 16.005 ms
Rear porch	= 2.296 us	Rear porch	= 0.594 ms
Sync width	= 1.037 us	Sync width	= 0.047 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 8: 68.677 KHz/85 Hz, 1024 X 768, pixel=94.500 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 14.561 us	Total size	= 11.765 ms
Display size	= 10.836 us	Display size	= 11.183 ms
Rear porch	= 2.201 us	Rear porch	= 0.524 ms
Sync width	= 1.016 us	Sync width	= 0.044 ms
Sync.polarity	= +	Sync.polarity	= +

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Factory preload modes

TABLE 9: 31.469KHz/70.087 Hz, 640 X 350, pixel=25.175MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 31.778 us	Total size = 14.268 ms
Display size = 25.422 us	Display size = 11.122 ms
Rear porch = 1.907 us	Rear porch = 1.907 ms
Sync width = 3.813 us	Sync width = 0.064 ms
Sync.polarity = +	Sync.polarity = -

TABLE 10: 37.861KHz/85.08 Hz, 640 X 350, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.413 us	Total size = 11.754 ms
Display size = 20.317 us	Display size = 9.244 ms
Rear porch = 3.048 us	Rear porch = 1.585 ms
Sync width = 2.032 us	Sync width = 0.079 ms
Sync.polarity = +	Sync.polarity = -

TABLE 11: 37.5KHz/75 Hz, 640 X 480, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.667 us	Total size = 13.333 ms
Display size = 20.317 us	Display size = 12.8 ms
Rear porch = 3.810 us	Rear porch = 0.427 ms
Sync width = 2.032 us	Sync width = 0.08 ms
Sync.polarity = -	Sync.polarity = -

TABLE 12: 37.861KHz/72.809 Hz, 640 X 480, pixel=31.5MHz

Horizontal	Vertical
Frame border = 0	Frame border = 0
Total size = 26.413 us	Total size = 13.735 ms
Display size = 20.317 us	Display size = 12.678 ms
Rear porch = 4.064 us	Rear porch = 0.739 ms
Sync width = 1.270 us	Sync width = 0.079 ms
Sync.polarity = -	Sync.polarity = -

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TABLE 13: 50.625 KHz/100.049 Hz, 640 X 480, pixel=40.5MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 19.752 us	Total size	= 9.995 ms
Display size	= 15.802 us	Display size	= 9.481 ms
Rear porch	= 1.975 us	Rear porch	= 0.435 ms
Sync width	= 1.580 us	Sync width	= 0.059 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 14: 37.927 KHz/85.039 Hz, 720 X 400, pixel=35.5 MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 26.366 us	Total size	= 11.759 ms
Display size	= 20.282 us	Display size	= 10.546 ms
Rear porch	= 3.042 us	Rear porch	= 1.107 ms
Sync width	= 2.028 us	Sync width	= 0.079 ms
Sync.polarity	= -	Sync.polarity	= +

TABLE 15: 37.879 KHz/60.317 Hz, 800 X 600, pixel=40MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 26.400 us	Total size	= 16.579 ms
Display size	= 20.000 us	Display size	= 15.840 ms
Rear porch	= 2.200 us	Rear porch	= 0.607 ms
Sync width	= 3.200 us	Sync width	= 0.106 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 16: 48.077 KHz/72.188 Hz, 800 X 600, pixel=50MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 20.800 us	Total size	= 13.853 ms
Display size	= 16.000 us	Display size	= 12.480 ms
Rear porch	= 1.280 us	Rear porch	= 0.478 ms
Sync width	= 2.400 us	Sync width	= 0.125 ms
Sync.polarity	= +	Sync.polarity	= +

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TABLE 17: 63.92KHz/100 Hz, 800 X 600, pixel=67.5MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 15.644 us	Total size	= 9.997 ms
Display size	= 11.852 us	Display size	= 9.387 ms
Rear porch	= 2.370 us	Rear porch	= 0.548 ms
Sync width	= 0.948 us	Sync width	= 0.047 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 18: 49.714KHz/74.534 Hz, 832 X 624, pixel=57.27MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 20.115 us	Total size	= 13.417 ms
Display size	= 14.528 us	Display size	= 12.552 ms
Rear porch	= 3.911 us	Rear porch	= 0.784 ms
Sync width	= 1.118 us	Sync width	= 0.060 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 19: 48.363 KHz/60.004 Hz, 1024 X 768, pixel=65MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 20.677 us	Total size	= 16.666 ms
Display size	= 15.754 us	Display size	= 15.880 ms
Rear porch	= 2.462 us	Rear porch	= 0.600 ms
Sync width	= 2.092 us	Sync width	= 0.124 ms
Sync.polarity	= -	Sync.polarity	= -

TABLE 20: 56.476KHz/70.069 Hz, 1024 X 768, pixel=75MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 17.707 us	Total size	= 14.272 ms
Display size	= 13.653 us	Display size	= 13.599 ms
Rear porch	= 1.920 us	Rear porch	= 0.513 ms
Sync width	= 1.813 us	Sync width	= 0.106 ms
Sync.polarity	= -	Sync.polarity	= -

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TABLE 21: 67.5 KHz/75Hz, 1152 X 864, pixel=108MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 14.815 us	Total size	= 13.333 ms
Display size	= 10.667 us	Display size	= 12.8 ms
Rear porch	= 2.370 us	Rear porch	= 0.474 ms
Sync width	= 1.185 us	Sync width	= 0.044 ms
Sync.polarity	= +	Sync.polarity	= +

TABLE 22: 60.0 KHz/60 Hz, 1280 X 960, pixel= 108MHz

Horizontal		Vertical	
Frame border	= 0	Frame border	= 0
Total size	= 16,667 us	Total size	= 16.667 ms
Display size	= 11.852 us	Display size	= 16.000 ms
Rear porch	= 2.889 us	Rear porch	= 0.600 ms
Sync width	= 1.037 us	Sync width	= 0.050 ms
Sync.polarity	= +	Sync.polarity	= +

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3.2.1 Horizontal scanning

Scanning frequency : 30 - 70 KHz
H-shift range : 10 mm Min. (for preset modes only)

3.2.2 Vertical scanning

Scanning frequency : 50 - 160 Hz
V-shift range : 10 mm min. (for preset modes only)

3.3 Power supply

The display device maintains the specified performance in the range described as bellows :

Type	Mains current	Mains Voltage	Mains freq.
230V version	1.5A Max.	90 - 264 VAC	60 3 Hz

Power consumption : 90 Watts Max.
Power cord length : 1.5M
Power cord type : 3 leads plug power cord
With protective earth plug or IBM Hooded

3.4 Power saving management system

	Signal			Compliance Requirement	Power
	H-Sync	V-Sync	Video		
On	Active	Active	Active	Mandatory	90w
Off	Inactive	Active	Blanked	Mandatory	2 w
Off	Active	Inactive	Blanked	Mandatory	2 w
Off	Inactive	Inactive	Blanked	Mandatory	2 w

Remark: Transition time from ON to any power saving mode will have 5 seconds delay.

3.5 CRT Description

This display unit employs a high resolution CRT complying with the following specifications :

Dimensions : 17 inches flat/square screen

Pitch : 0.27mm dotted with black matrix
Deflection angle : 90 degrees
Light transmission : 47%(PH),46%(CPT),52(LG) (dark glass)
Face treatment : Anti-glare, anti-static
Implosion protection : By P-Mini-rim-band.
EHT : 25.0 1 KV (Ib=0)
Visible screen area : 327.2 mm x 245.44mm
CRT Source : PHILIPS tube, CPT tube, LG tube, SDI

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3.6 RGB Amplifier

3.6.1 Video amplifiers

Dot Rate	: 108 MHz
Over / undershoot	: 15% Max. (Transient response)
Sag	: 5% Max.(pulses of 0.70H)
Black level shift	: 5% Max.

3.6.2 Brightness and Contrast
Reference mode 68.7KHZ/85 HZ full white pattern.

DISPLAY LIGHT OUTPUT

Brightness	Contrast	Light output (full white)
Minimum	Minimum	not visible
Center	Maximum	30 5 FL.

100mmx100mm block
Brightness at center and contrast at maximum light output is 41+/-6 FL.

sRGB : When sRGB is selected, the light output (Full white pattern) will be 23+/- 3 FL regardless of main contrast and brightness controls. Adjusting contrast or brightness will auto exit sRGB setting and go to 6500K.

3.6.3 Raster light output
Apply 68.7KHz/85Hz mode with no video pattern, set brightness at center click(50%) and contrast control at minimum
The light output on the screen center should <0.2FL.

3.7 Variation of image size (For preset modes only)

Due to brightness change : 1.0% max

(Set brightness control at center click(50%), turn contrast control from Min. to Max.)

Due to aging
(25 C, 300hrs) : 1.0%

Due to mains voltage
variation (10%) : 1.0%

3.8 Degaussing

An automatic degaussing circuit is provided which requires no intervention.
The degaussing activated at the time of switch on or switch on again after switching off degaussing circuits for longer than 30 minutes.

3.9 Phosphor protection
The display device is sufficiently protected against the burning of phosphors in case of repetitive power cycling or absence of horizontal deflection.

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3.10 Low emission requirements.(MPRII/TCO99/TCO95)

Items	Band I ELF (rms)	Band II VLF (rms)
Alternating Electric Field	MPRII < 25 V/M TCO < 10 V/M	MPRII < 2.5 V/M TCO < 1.0 V/M
Magnetic Field	MPRII < 250 nT TCO < 200 nT	MPRII < 25 nT TCO <25 nT
Electrostatic Potential	< 500 V	

Band I : 5 to 2K HZ.
Band II : 2K to 400K HZ.
Test procedure according to low emission and E.S.P. test method.

3.11 Display data channel: DDC2B (VESA STANDARD)

The DDC HEX Data (refer sheet 190) should be written into the DDC IC (24LC21 or equivalent)

	DDC1	DDC2B
Software		V
Hardware		

4.0 Display image (CRT facing east)

The monitor is aligned in a magnetic cage having the following magnetic field components :
Northern Hemisphere : H = 0, V = 450 mG, Z = 0
Southern Hemisphere : H = 0, V = -500 mG, Z = 0
Equatorial Support : H = 0, V = 0 mG, Z = 0

Conditions for visual testing, unless otherwise stated:
Input video signal - 700 mVpp cross hatch
Brightness control - center position
Contrast control - maximum position

4.1 Display resolutions

See 3.1.3

4.2 Image size (For preset modes only)

The dimensions of guaranteed display area to be measured along the picture center of horizontal and vertical axis of the screen as listed below: (preset modes only, refer to fig. 1)

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Width : 306 3 mm
Height : 230 3 mm

4.3 Image centering deviation (For preset modes only)

With respect to fig. 2, the target relationships are the following :

|A- B| 5 mm |C- D| 5 mm

Note : This centering is adjustable by the end-user.

4.4 Picture shift control range (For preset modes only)

H-shift range : 10 mm min.
V-shift range : 10 mm min.

4.5 Picture tilt

With respect to Fig. 3, Tilt to be measured on extremes of center line from bezel.

|A- B| : 2 mm

4.6 Geometrical distortions (For preset modes only)

It is acceptable that pincushion, trapezoid, rhomboid, rotation and various waves distortions must remain within the limits of tolerance as in fig. 4,
where A = B = 2.0 mm.
C = D = 2.0 mm.
The waviness of any vertical or horizontal shall be less than 1.0 mm over a 50 mm distance.

4.7 Image non-linearity pattern with
12 equal blocks along horizontal axis,
9 equal blocks along vertical axis. (see Fig. 1) (For preset modes only)

H: 12 % (for VGA mode <45KHz), others modes <10%
V: 10% for all modes

Deviation of Two adjacent block:
H: 8 % (for VGA mode <45KHz), others modes <6%
V: 6% for all modes

$$\text{H. non-linearity} = \frac{\text{X. Max.} - \text{X. min.}}{\text{X. Max.}} \times 100\%$$

$$\text{V. non-linearity} = \frac{\text{Y. Max.} - \text{Y. min.}}{\text{Y. Max.}} \times 100\%$$

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4.8 Mis-convergence

The maximum convergence error to be measured on a white spot or white display line to represents the maximum distance between the energy centers of any two primary colors. (See Fig. 6) **For VGA mode <45KHz Zone B: 0.4mm.**

CONVERGENCE SPEC.

Zones	0.27 mm CRT
Zone C	0.15 mm
Zone A	0.25 mm
Zone B	0.35 mm

4.9 Focus check (68.7 KHZ / 85 HZ)

Adjust brightness control to center click and contrast control to get 25 FL at full white pattern , then generate me characters to cover entire of the picture the characters should be clearly identified in all display area. (See Fig. 7)

4.10 Luminance uniformity

condition : With full white pattern, set contrast control at maximum position and brightness control at center click position.

The center of the display is 30 FL+/-5. , the Max. deviation of the screen should not exceed 25% .

4.11 White color adjustment

Based on the 1931 CIE chromatic diagram (x,y) coordinates of white display on screen center should be:

For 9300 K X = 0.283 0.015
Y = 0.297 0.015
For 6500 K X = 0.313 0.015
Y = 0.329 0.015
For sRGB X = 0.313 0.015
Y = 0.329 0.015

Check conditions :
Set brightness control at center click position and contrast at maximum position.

4.12 Color tracking on full white pattern

To adjust the luminance output from 3 to 30 FL. By turning the contrast control (brightness control at center click position), the color co-ordinates should not deviate more than the following tolerance when compare to display center:
X= X (center) 0.015
Y= Y (center) 0.015

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4.13 Purity

Test patterns : Full white / Red / Green / Blue.
Conditions : As stated in item 4.0, the purity must be checked under specific destinations of earth magnetic environments and the monitor to be well degaussed.

After warming-up time of 30 min., no color stains may occur in above four patterns.

4.14 Moir

Condition: Displaying a full white pattern, at any preset mode , the display size to be set as Fig.1

The clouding effect must not rise to disturbing levels in anywhere of the screen with luminance setting from 15 to 30 FL.

4.15 Blemish

Blemish shall be in accordance with CRT specification.

5.0 Mechanical characteristics

5.1 User controls
- Power ON/OFF switch
- 5 Key digital user control

5.2 Connectors and cables

5.2.1 Power cord type: 3 leads plugable power cord with protective earthed plug or IBM Hooded

Length : 1.5 m 50 mm (exc. connector)
Safety requirements : See following.

Countries	Approval		
	Mains plug	Wire	Connector
Germany	VDE	VDE	VDE
Switzerland	--	SVE	SVE
Belgium	CEBEC	--	--
Sweden	SEMKO	SEMKO	SEMKO
Finland	EI	--	EI
Norway	NEMKO	NEMKO	--
Denmark	DEMKO	DEMKO	DEMKO
Italy	OVE	--	OVE
Netherlands	KEMA	KEMA	KEMA
U.K.	ASTA	HAR	ASTA
U.S.A.	UL	UL	UL
Canada	CSA	CSA	CSA
Australia	SAA	SAA	SAA

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5.2.2 Signal cable

Length of video : 1.5 m 50 mm flying with 15 pin PS/2 D-shell socket

5.3 Tilt and swivel base
Tilt angle : 5 forward and 15 backward
Swivel rotation : 90 leftward or rightward

6.0 Environmental characteristics

The following sections to define the interference and susceptibility condition limits that might occur between external environment and the display device.

6.1 Susceptibility of display to external environment

6.1.1 (A) Operating limits
Temperature : 0C to 40C
Humidity : 10 to 90% (W/O condensation)
Air pressure : 700 ~ 1100 mbar

(B) Non-operating limits (storage)
Temperature : -25C to 65C
Humidity : 5 to 95 % (W/O condensation)
Altitude : 300 to 1100 mbar

6.1.2 Transportation packages
A) Carton box
A-1 Size (with pedestal)
496(W)495(H)518(D)

A-2 Carton paper: double wall AB flute corrugate board, color brown
Bursting : 19.3 kg/cm^2 min
Compression : 600 kg min

B) Transportation conditions
B-1 Container loading (separated pedestal)

Q'ty	Container size			
	40'		20'	
	W/ pallet		W/ pallet	
	Yes	No	Yes	No
Layers	4	4	4	4
Sets per layer	4	4	4	4
Sets per block	16	16	16	16
Blocks per container	24	24	10	10
Total sets	384	384	160	160

B-2 Transportation standards

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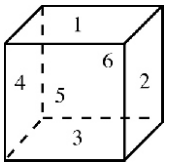
TRANSPORTATION TEST OF BU-MONITORS		
TEST ITEM	**TEST CONDITION**	**STANDARD REFERENCE**
1. PACKAGED TEST:		
1.1 Packaged random vibra. test	5~200 Hz, 0.73 Grms, 30 MIN/ AXIS, 3 AXES.,	Ref. ASTMD-4169
1.2 Drop test	Gross weight drop height: 9.53~18.59 kg 76 cm Sequence: 1C-3E-6F, 10 drops,	NSTA NSTA
1.3 Cold drop test (Only for reference)  	-10℃for 16 hours, recovery time after cold test: (during 5 minutes) Gross weight drop height: 9.53~18.59 kg 61cm Sequence: 1C-3F, 4drops, 1 set: C345-F4-F5-F3, 1 set: C261-F2-F6-F1	UN-D1400 NSTA
2. UN-PACKAGED VIBRATION TEST:		
2.1 Operating random vibra. test	5~500Hz, 0.25 Grms, 30 min/axis 3 axes. Frequency: (Hz): 5,350,500 G^2/ Hz: 0.001, 0.0001, 0.00005	Ref. OEM spec.
2.2 Shock test (half sine)	a. 120G, <3 msec, 6 shocks G value measurement filter: 330Hz Exclude CRT impurity	Ref. OEM spec.

6.2 Display disturbances from external environment

6.2.1 ESD Disturbances
According to EN50082-1 (also refer to IEC801-2 for detail).

6.3 Display disturbances to external environment

The disturbances induced by the display and tolerated by the environment are defined as follows :

6.3.1 Ionizetic radiation

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6.3.2 EMI/EMS
Can comply with FCC part 15, DOC C108.8 and EN55022.
EMS EN61000-4-3 (80% 1KHz AM modulation) Picture jitter 2mm.

7.0 Safety tests

7.1 Dielectric strength (Hi-pot test)
According to IEC950, UL1950 and CSA22.2 No 950

7.2 Resistance for protective earthing
According to IEC950

7.3 Leakage current
According to IEC950, UL1950 and CSA22.2 No. 950

7.4 Grounding
According to IEC950, UL1950 and CSA22.2 No. 950

8.0 Certifications

8.1 Safety
The monitors comply with the following safety standards:

- IEC950
- UL1950
- DHHS 21 CFR, subchapter J
- CSA-22.2 NO. 950
- GERMANY ZH1/618(GS), ISO9241-3,-8

8.2 EMI (Electromagnetic Interference)
The monitor comply with the following EMI standards :

- EN55022
- FCC Part 15
- DOC C108.8

8.3 Fulfil approbation requirements
Destination basis, set can fulfil following requirements:

Countries	Safety	EMI
Germany	TUV,GS	CE
Sweden	SEMKO	----
Norway	NEMKO	----
Denmark	DEMKO	----
Finland	FIMKO	----
Spain	HOMOLOGATION	CE
UK	BEAB	CE
U.S.A.	UL, DHHS	FCC
Canada	CSA	DOC
Japan	----	VCCI

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GENERAL PRODUCT SPECIFICATION

9.0 Reliability

9.1 Mean time between failures
MTBF to be calculated according to Military standard
MIL-HDBK-217C.

MTBF 75,000 Hours (Excluding CRT)

$$\text{PRACTICE of MTBF} = \frac{\text{TOTAL HRS (POWER ON) X TOTAL SETS}}{\text{NBR. OF FAILURE SETS}}$$

10.0 Quality assurance requirements

10.1 Acceptance test

According to MIL-STD-105D level II,
AQL : 0.4 (Major)
: 1.0 (Minor)

Customer acceptance criteria : UAW 0377/40

11.0 Service ability

The service ability of this monitor should fulfil the requirements which are prescribed in UAW-0346 and must be checked with the check list UAT - 0361

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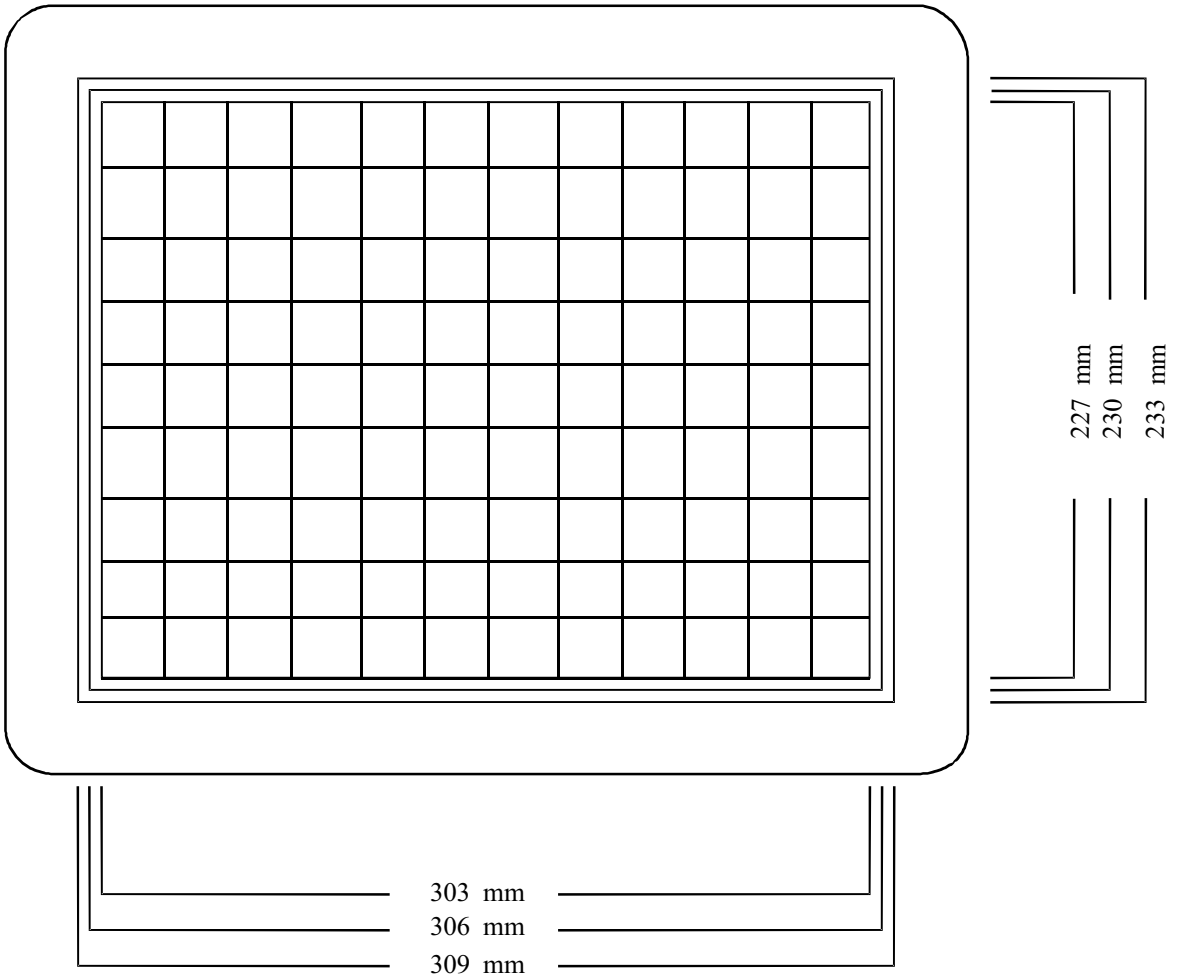

FIG-1 IMAGE DIMENSION

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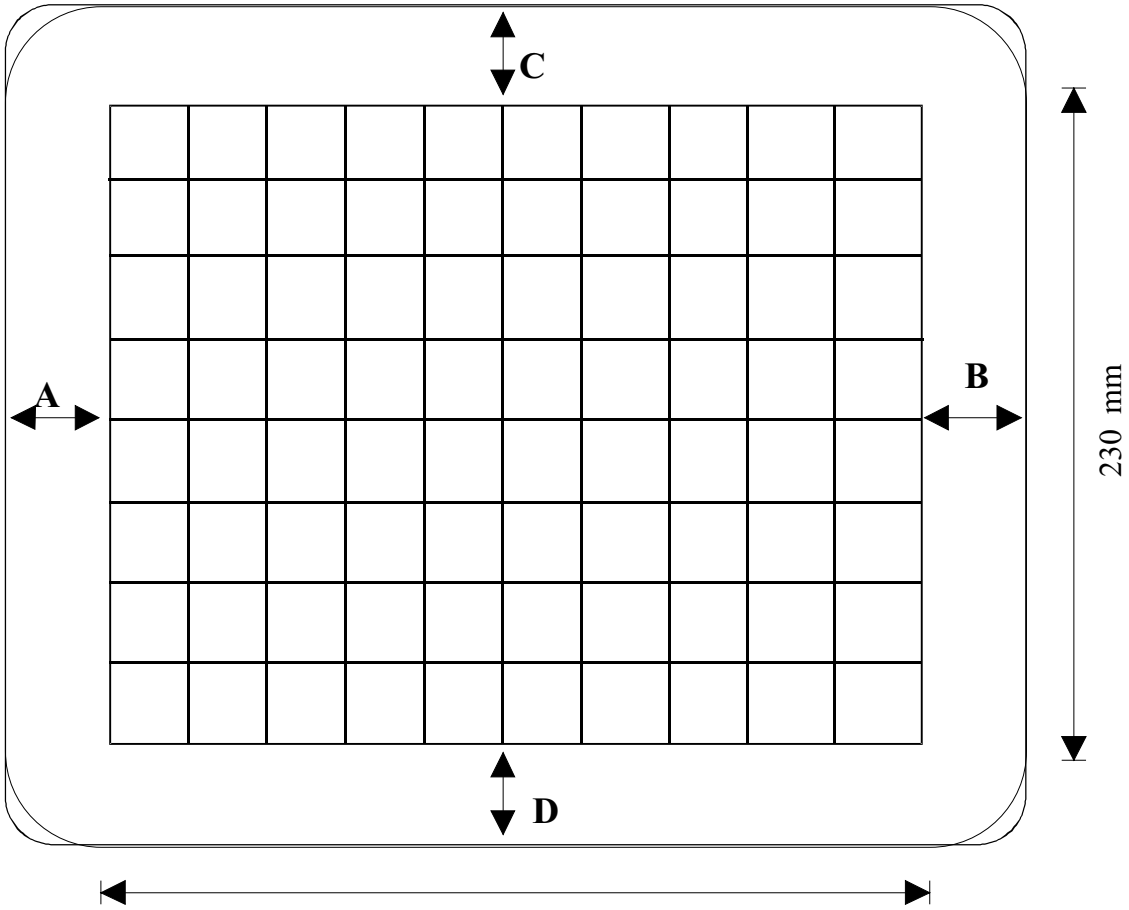
CLASS NO.	17" M32 GS3 107E4-70K CMTR						
	TYPE : 107E41/00C	8639 000 12205					
2002-04-26	BRAND : PHILIPS						
NAME JIM LIN	SUPERS.	29	590 — 23	10		A4	
TY CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424

PHILIPS



|A-B| AND |C-D| ≤ 5 mm

FIG-2 IMAGE CENTERING

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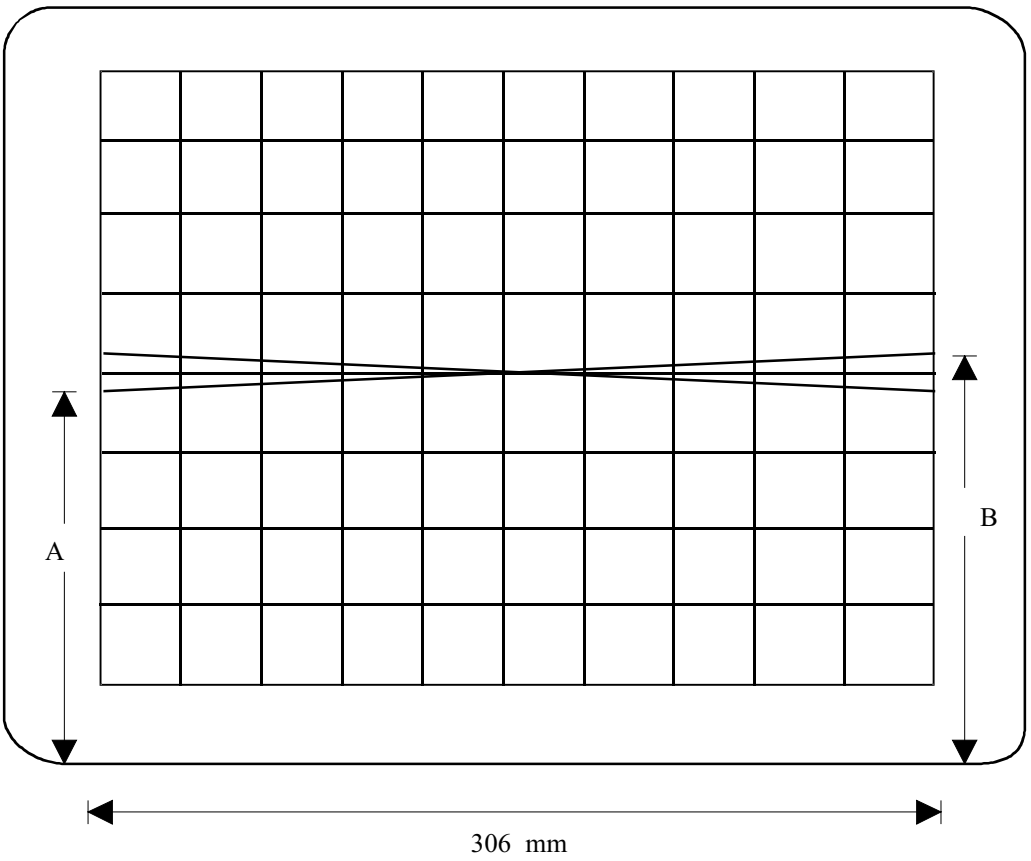
CLASS NO.	17" M32 GS3 107E4-70K CMTR						
	TYPE : 107E41/00C	8639 000 12205					
2002-04-26	BRAND : PHILIPS						
NAME JIM LIN	SUPERS.	29	590 — 24	10		A4	
TY CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					

2838 100 05424



$$|A-B| \leq 2 \text{ mm}$$

FIG-3 IMAGE ROTATION

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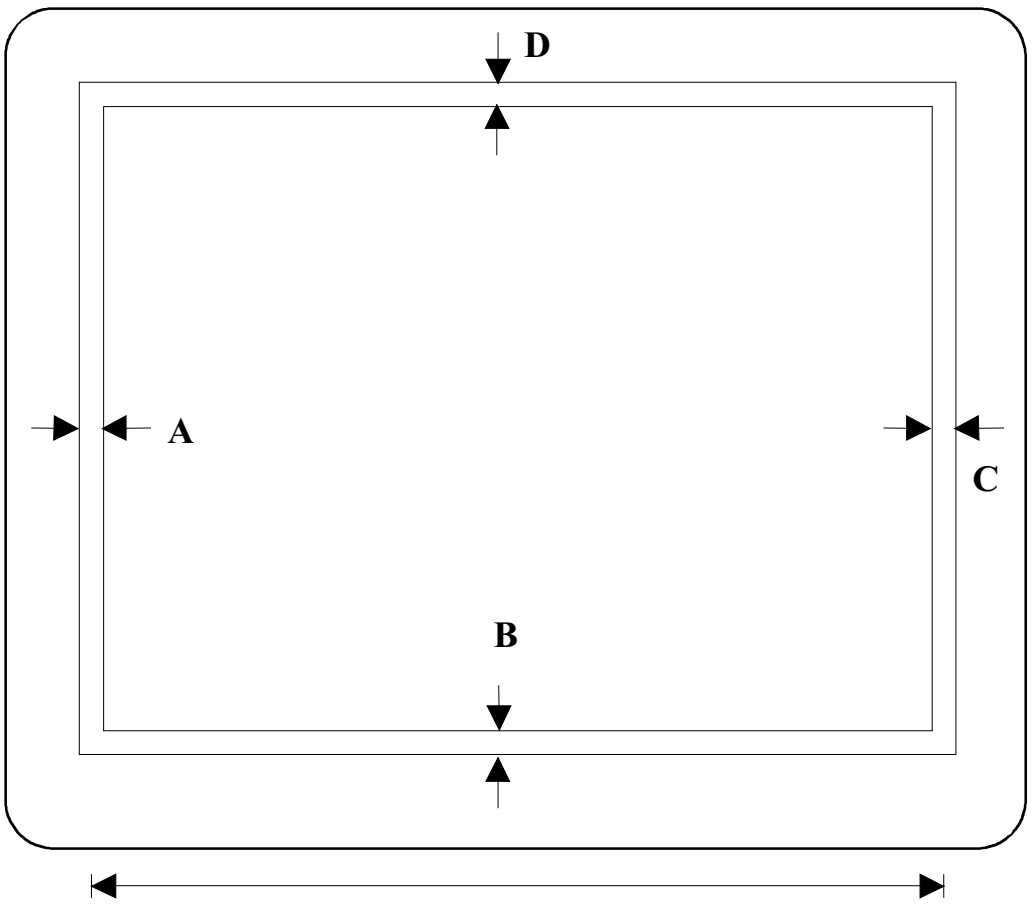
CLASS NO.	17" M32 GS3 107E4-70K CMTR		8639 000 12205				
	TYPE : 107E41/00C BRAND : PHILIPS						
2002-04-26							
NAME JIM LIN	SUPERS.	29	590 — 25	10		A4	
TY / CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.					



A=B=C=D ≤ 2.0 mm

FIG-4 IMAGE GEOMETRY

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CLASS NO.	17" M32 GS3 107E4-70K CMTR							
	TYPE : 107E41/00C			8639 000 12205				
2002-04-26	BRAND : PHILIPS							
NAME JIM LIN	SUPERS.	29	590 — 26	10		A4		
TY CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

2838 100 05424

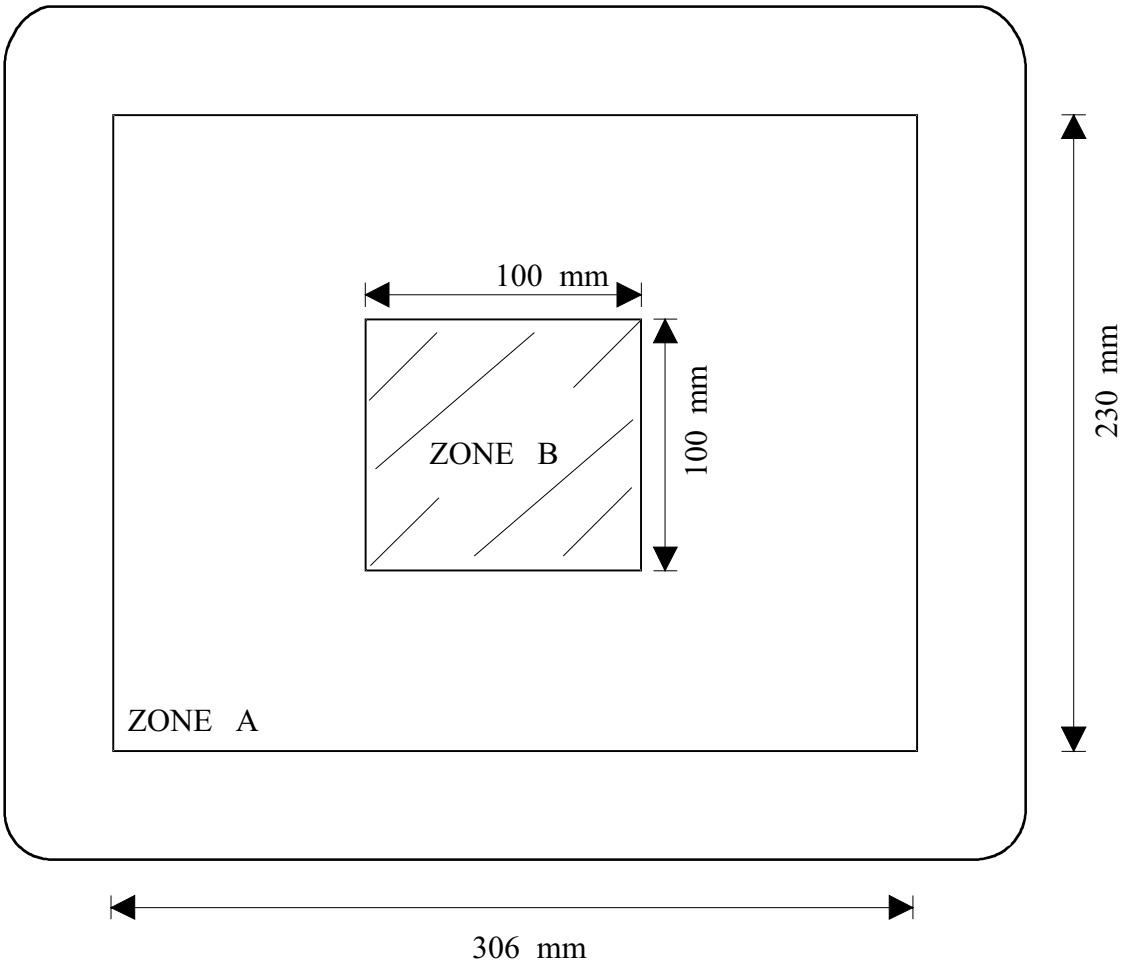

FIG-5 CONTRAST AND BRIGHTNESS MEASUREMENT AREA

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CLASS NO.	17" M32 GS3 107E4-70K CMTR							
	TYPE : 107E41/00C BRAND : PHILIPS		8639 000 12205					
2002-04-26								
NAME JIM LIN	SUPERS.	29	590 — 27	10		A4		
TY CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.						

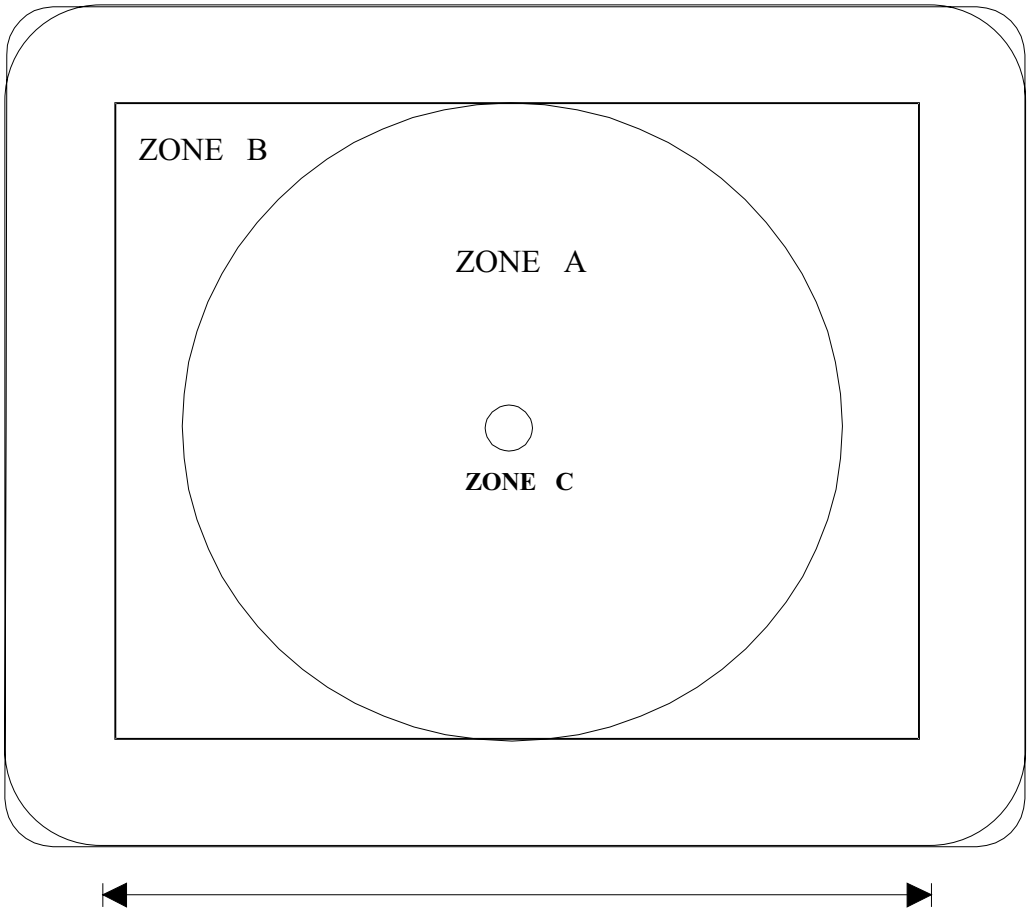

FIG-6 MISCONVERGENCE

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CLASS NO.	17" M32 GS3 107E4-70K CMTR								
	TYPE : 107E41/00C			8639 000 12205					
2002-04-26	BRAND : PHILIPS								
NAME JIM LIN	SUPERS.	29	590 — 28	10		A4			
TY CHECK	DATE 2002-04-26	Property of PHILIPS ELECTRONICS INDUSTRIES (TAIWAN) LTD.-B.E.							

PHILIPS

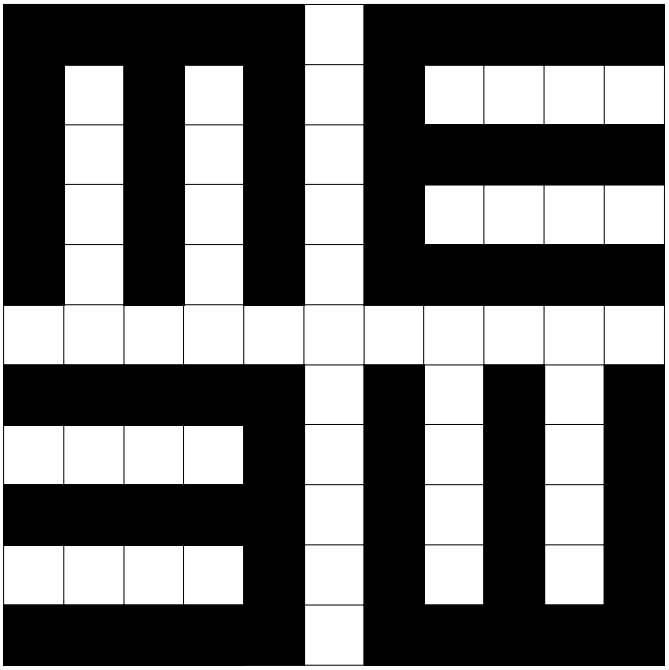

Figure 7

Focus check character

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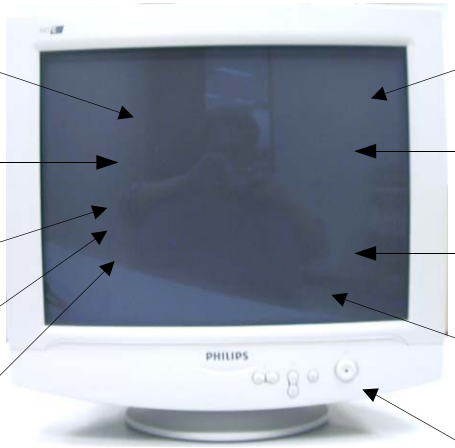
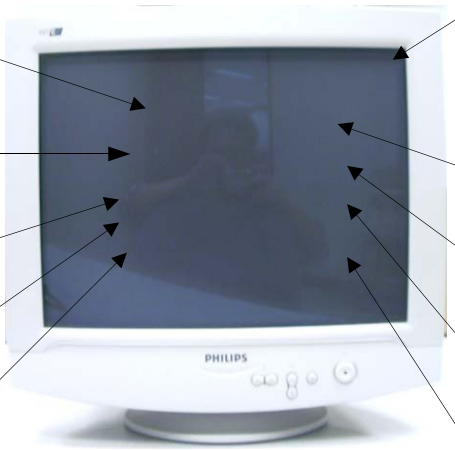
General Troubleshooting Guide



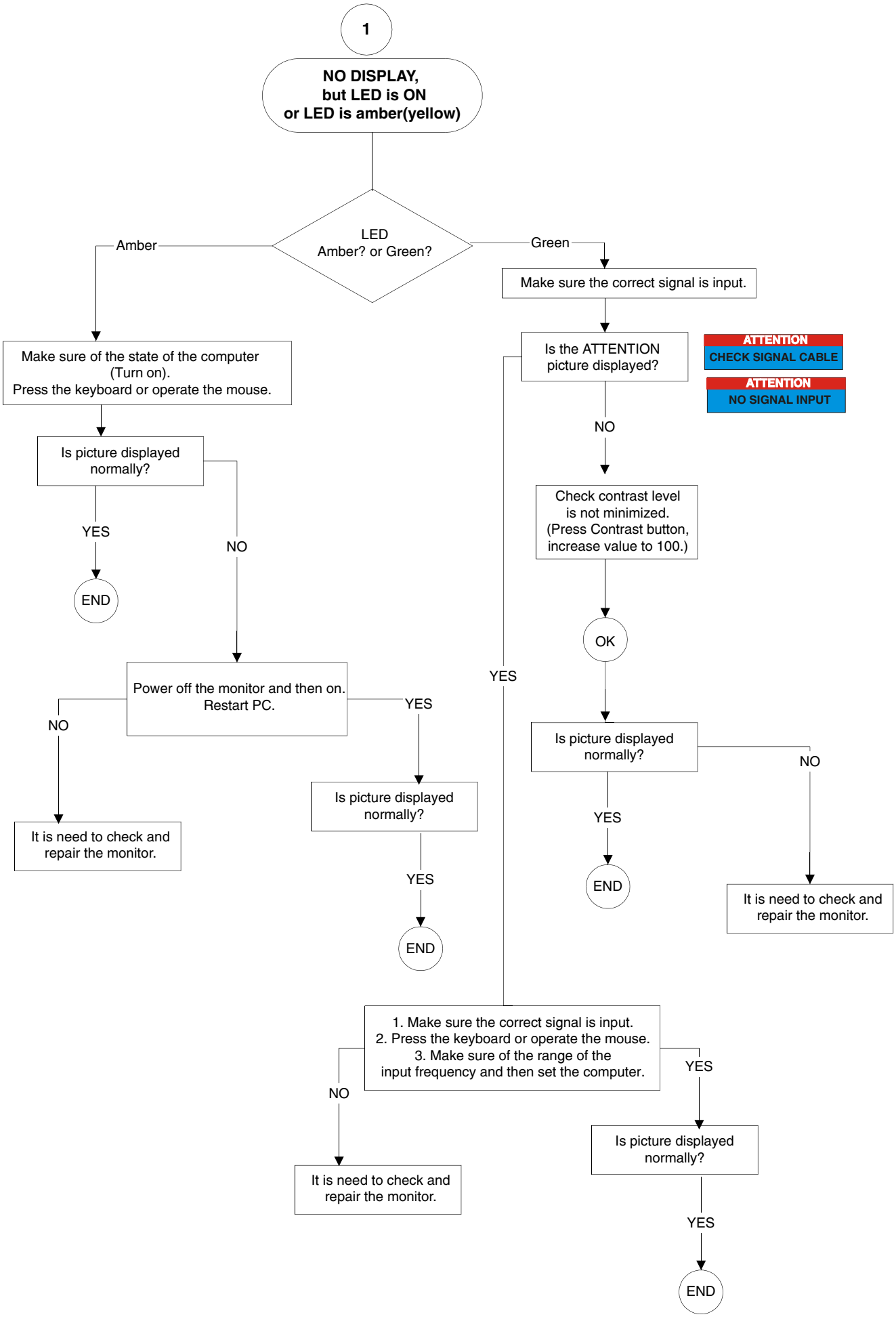
1. No Display, but LED is ON or LED is amber (yellow)
2. Monitor drivers (inf file)
3. Focus
4. Degaussing
5. Picture distortion (Geometry)
6. Unstable Picture/ Picture Flickers
7. H/V Rolling, H/V Sync.
8. Picture too bright
9. Picture too dim
10. No Power / LED is off



11. Moire
12. OSD main menu locked
13. Shimmering / Jitter/Video Noise
14. Missing Color
15. Color Purity
16. Power management function is not active
17. A buzzing sound when powering on
18. CustoMax
19. Colorific
20. USB
21. Picture too Large or Small

Note : Not all described feature are applicable for all monitors.

General Troubleshooting Guide



General Troubleshooting Guide

2

Picture is too bright or dark

Press the OK button
Bring up "MAIN CONTROLS" window

NO

Make sure of the signal cable connection.
Make sure of the state of the computer (Turn on).
Press the keyboard or operate the mouse.

YES

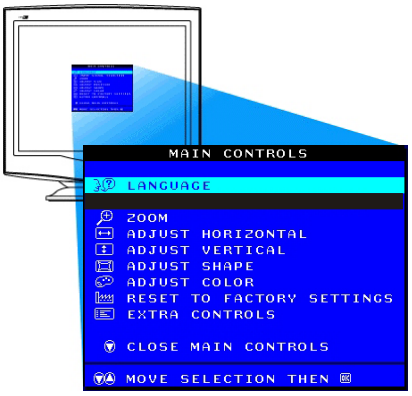
Is picture displayed normally?

YES

END

NO

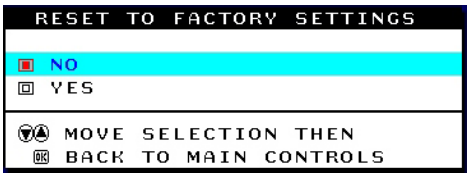
It is need to check and repair the monitor.



YES

Select "RESET TO FACTORY SETTINGS"

Press the OK button
Bring up "RESET TO FACTORY SETTINGS" window



Press the DOWN button to select "YES"

Is picture displayed normally?

YES

Press the OK button
Press the OK button

YES

END

Go to cover page

General Troubleshooting Guide

3

Plug & Play is not active normally

for Windows 95/98/2000/Me or later

Philips' monitors build in VESA DDC2B feature to support Plug & Play requirement for Windows 95/98/2000/Me . You can install the information file (.inf) in order to select your Philips monitor from "Monitor" dialog box in Windows 95/98/2000/Me to activate Plug & Play application. The installation procedure based on
Windows '95 OEM Release 2 , 98 , Me and 2000 is specified as follows,
(In case of connecting the monitor to the PC compliant with VESA standard with the designated signal cable, the PC reads display pixels, frequency, and color feature of this monitor to optimise the picture for the monitor automatically.)
DDC : Abbreviation for Display Data Channel

**** Windows NT 4.0 does not inquire driver (inf file) for monitors.****

For Windows 95

1. Start Windows '95
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, point to 'Change...' then click 'Have Disk...'.
6. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
7. Click the 'OK' button then choose your monitor model and click the 'OK'.
8. Click 'Close' button.

For Windows 98

1. Start Windows 98
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, point to 'Change...' then click 'Next'
6. Choose "Display a list of all the drivers in a specific location, so you can select the driver you want." then click 'Next' and then click 'Have Disk...'.
7. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
8. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
9. Click 'Finish' button then the 'Close' button.

For Windows Me

1. Start Windows Me
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor' button, then click 'Change...' button.
6. Choose "Specify the location of the driver(Advanced)" and click the 'Next' button.
7. Choose "Display a list of all the drivers in a specific location, so you can select the driver you want." then click 'Next' and then click 'Have Disk...'.
8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive) then click 'OK' button.
9. Click the 'OK' button then choose your monitor model and click the 'Next' button then click 'Next' button.
10. Click 'Finish' button then the 'Close' button.

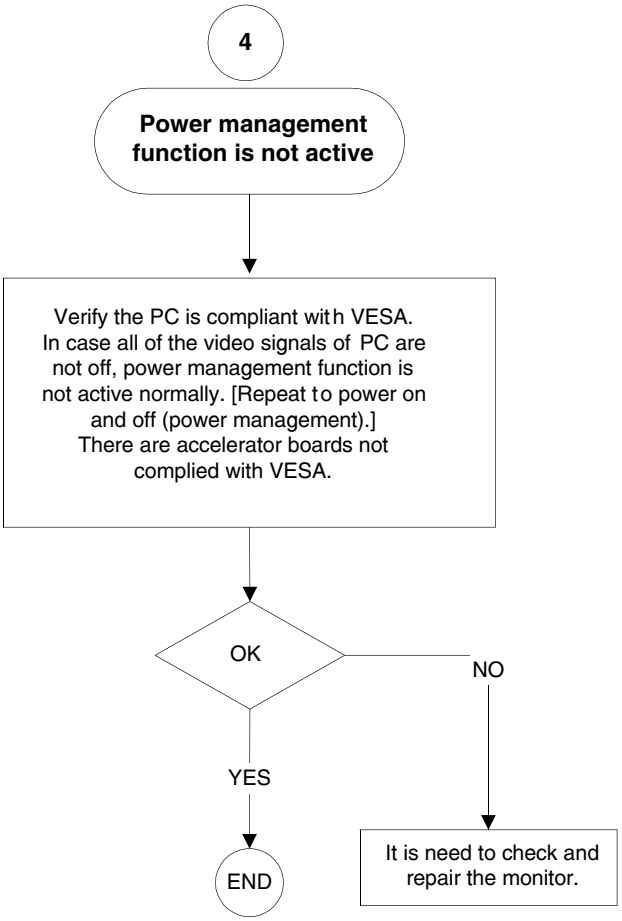
For Windows 2000

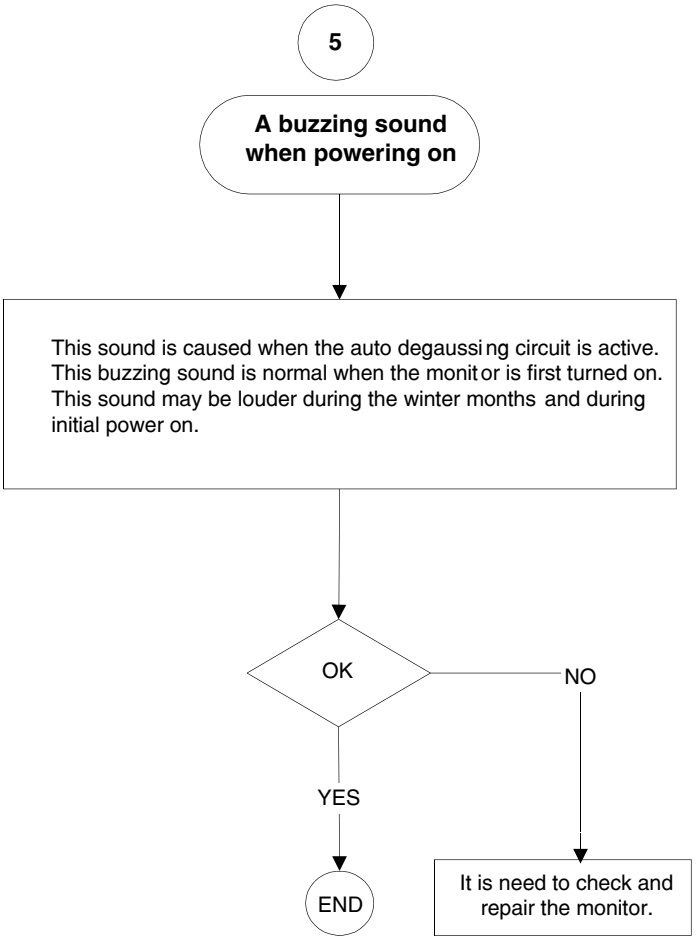
1. Start Windows 2000
2. Click the 'Start' button, point to 'Setting', and then click 'Control Panel'.
3. Double Click the 'Display' Icon.
4. Choose the 'Settings' tab then click 'Advanced...'.
5. Choose 'Monitor'
   - If the 'Properties' button is inactive, it means your monitor is properly configured. Please stop installation.
   - If the 'Properties' button is active. Click 'Properties' button. Please follow next step continually.
6. Click 'Driver' and then click on 'Update Driver...' then click on the 'Next' button.
7. Choose "Display a list of the known drivers for this device so that I can choose a specific driver then click 'Next' and then click 'Have disk...'.
8. Click 'Browse...' button then choose the appropriate drive F: (CD-ROM Drive).
9. Click the 'Open' button, then click the 'OK' button.
10. Choose your monitor model and click the 'Next' button then click 'Next' button.
11. Click 'Finish' button then the 'Close' button.

If you can see the "Digital Signature Not Found" window then click the 'Yes' button.

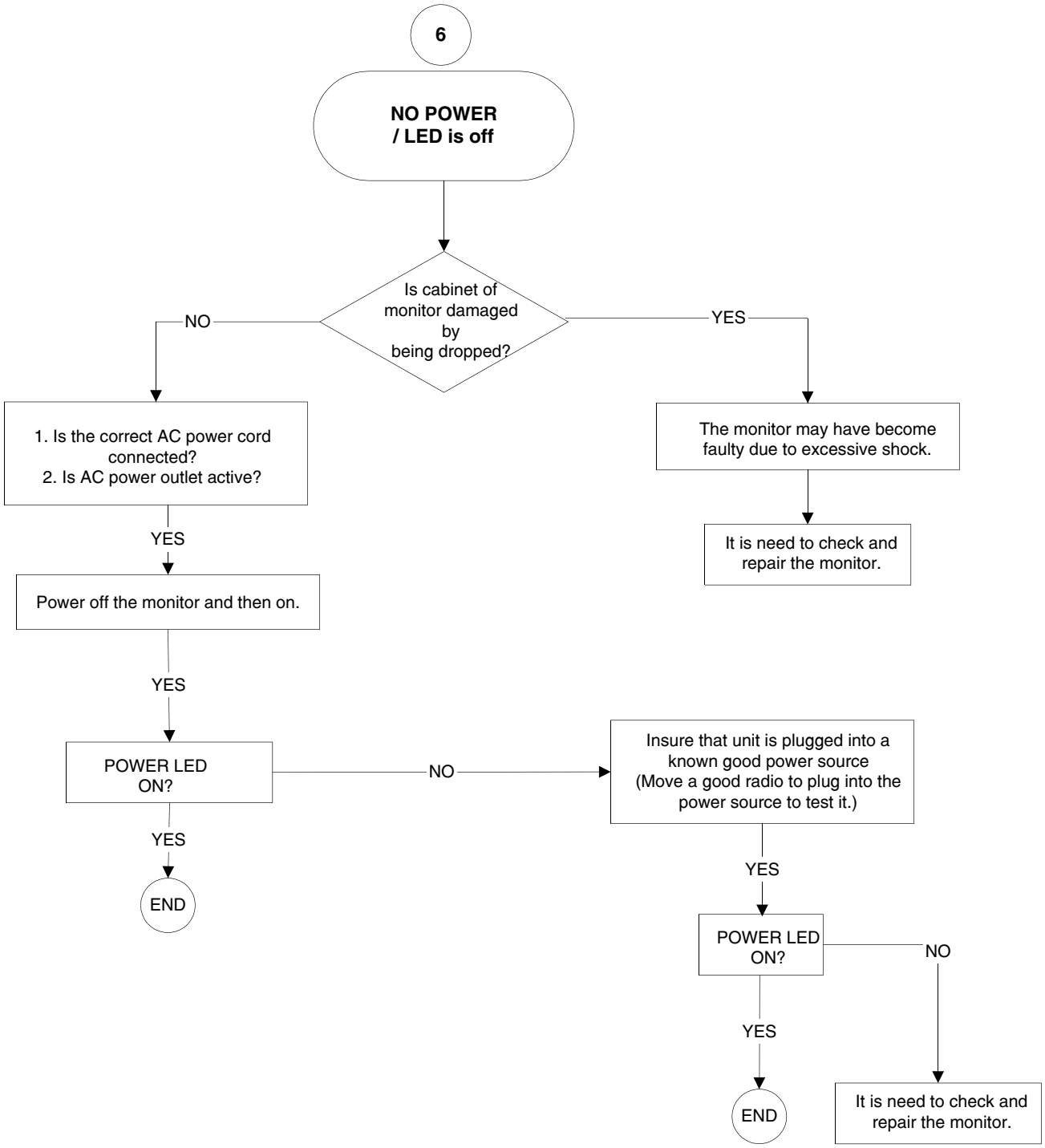
If your Windows 95/98/2000/Me version is different or you need more detail installation information, please refer to Windows 95/98/2000/Me user's manual.

General Troubleshooting Guide


4
Power management function is not active
Verify the PC is compliant with VESA. In case all of the video signals of PC are not off, power management function is not active normally. [Repeat to power on and off (power management).] There are accelerator boards not complied with VESA.
OK
NO
YES
END
It is need to check and repair the monitor.


5
A buzzing sound when powering on
This sound is caused when the auto degaussing circuit is active. This buzzing sound is normal when the monitor is first turned on. This sound may be louder during the winter months and during initial power on.
OK
NO
YES
END
It is need to check and repair the monitor.

General Troubleshooting Guide


6
NO POWER
/ LED is off
Is cabinet of monitor damaged by being dropped?
NO
YES
1. Is the correct AC power cord connected?
2. Is AC power outlet active?
YES
Power off the monitor and then on.
YES
POWER LED ON?
NO
YES
END
The monitor may have become faulty due to excessive shock.
It is need to check and repair the monitor.
Insure that unit is plugged into a known good power source (Move a good radio to plug into the power source to test it.)
YES
POWER LED ON?
NO
YES
END
It is need to check and repair the monitor.

General Troubleshooting Guide

7

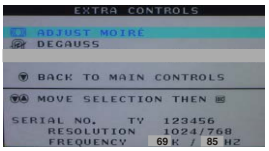
Color has irregularity

Have you changed the tilt or swivel angle of the monitor?

YES

Press OK " OK " button
Select "EXTRA CONTROLS"

Press the OK OK button
Bring up "EXTRA CONTROLS" window



Press the DOWN button
to select "DEGAUSS",
then press OK " OK " button

Is picture displayed normally?

NO

YES

END

Are there any stray fields such as magnetic and speaker near the monitor?
Keep any stray magnetism away from the computer.

YES

Is picture displayed normally?

YES

END

NO

* Keep any stray magnetism away from the computer.
* Reset to Factory settings.
* Press "DEGAUSS" selection.

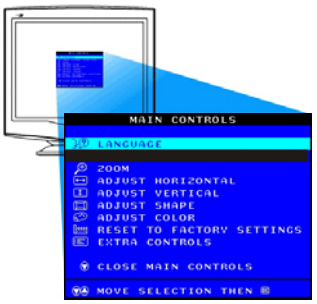
Unsuccessful

It is need to check and repair the monitor.

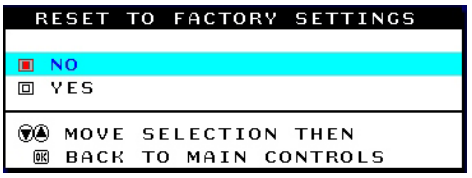
Did you adjust the red, green, and blue colors?

YES

Select "RESET TO FACTORY SETTINGS"



Press the OK OK button
Bring up "RESET TO FACTORY SETTINGS" window



Press the DOWN button
to select "YES"

NO

Is picture displayed normally?

YES

Press the OK OK button
Press the OK OK button

YES

END

General Troubleshooting Guide

7

Picture distortion is not adjusted normally.

Is it possible to make adjustment by using the On Screen Display ?

Press "OK" button, then bring up "MAIN CONTROLS" window.

Adjust Horizontal, Vertical or Shape.

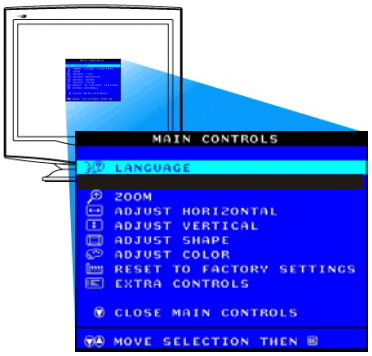
Is picture displayed normally

YES

END

YES

Press the OK button
Bring up "MAIN CONTROLS" window

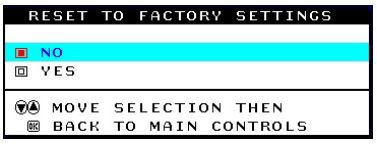


YES

Select "RESET TO FACTORY SETTINGS"

Press the OK button
Bring up "RESET TO FACTORY SETTINGS" window

Press the DOWN button
to select "YES"



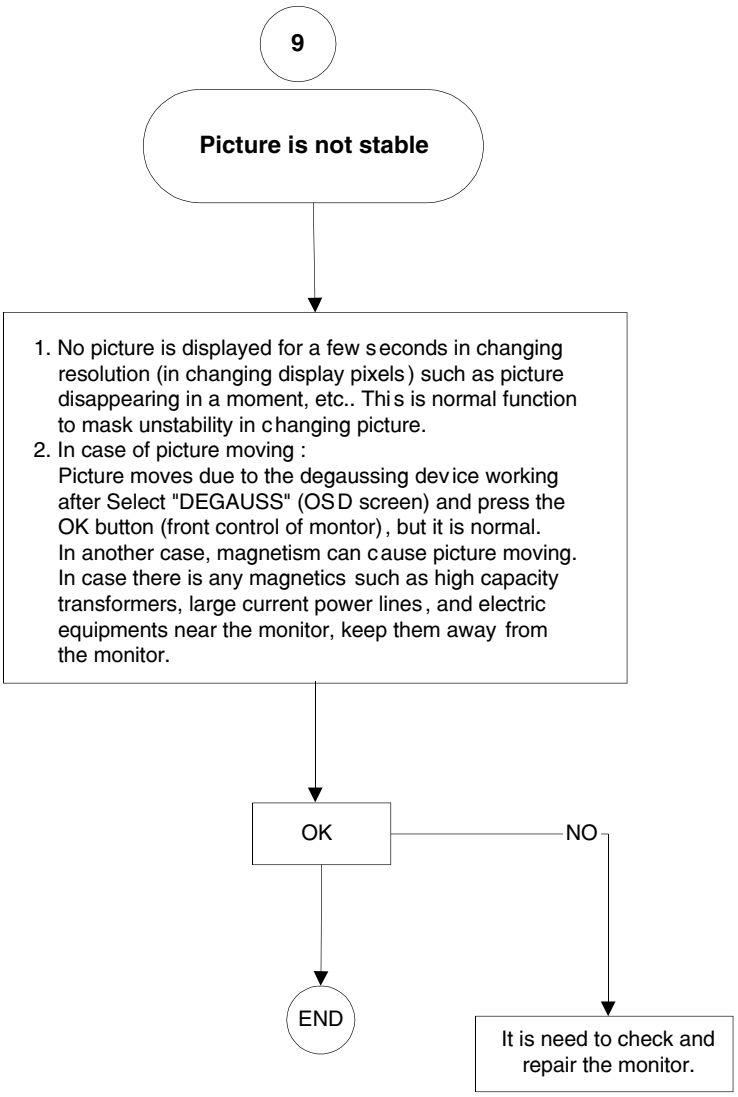
Is picture displayed normally?

YES

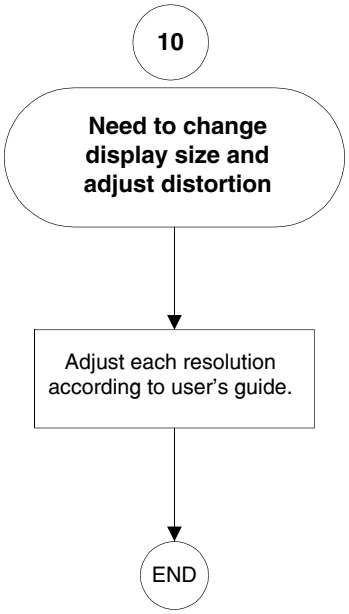
Press the OK button
Press the OK button

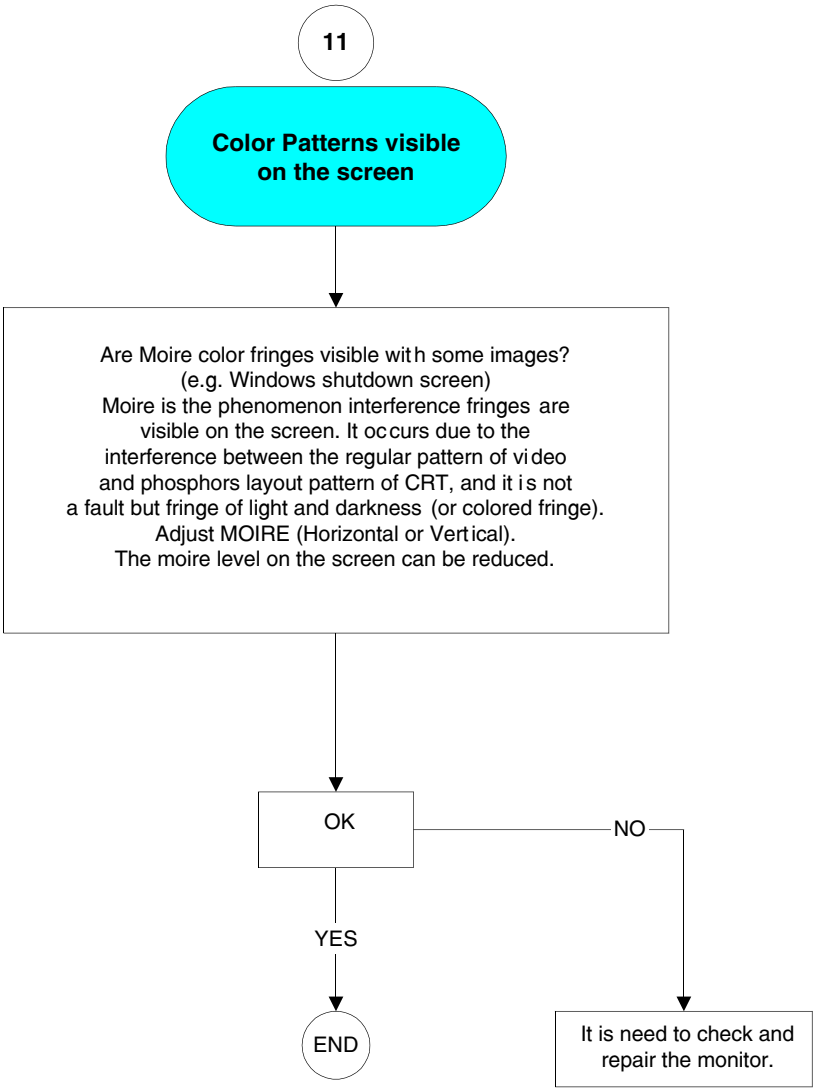
YES

END

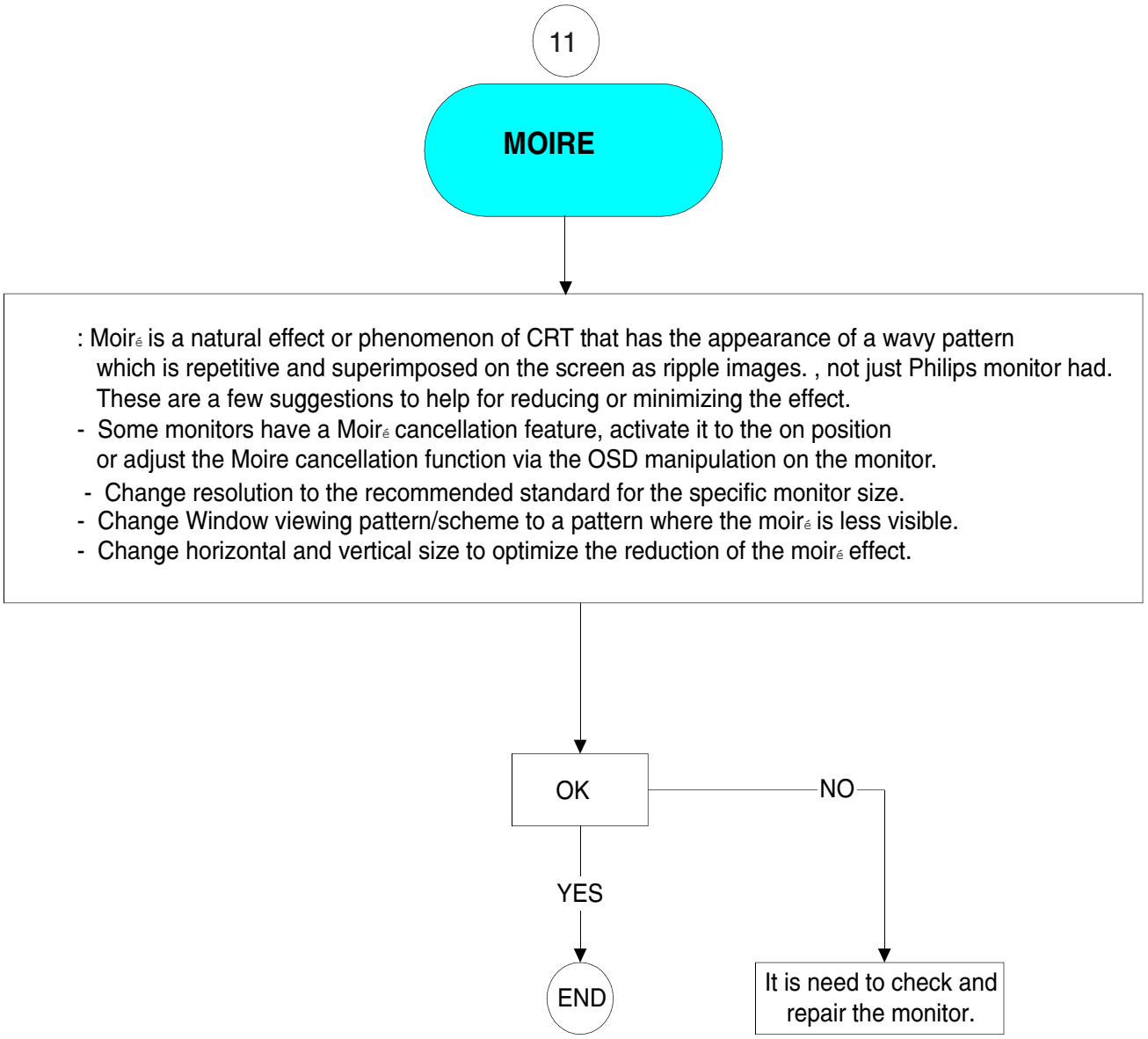

9
Picture is not stable
1. No picture is displayed for a few seconds in changing resolution (in changing display pixels) such as picture disappearing in a moment, etc.. This is normal function to mask unstability in changing picture.
2. In case of picture moving :
Picture moves due to the degaussing device working after Select "DEGAUSS" (OSD screen) and press the OK button (front control of montor), but it is normal.
In another case, magnetism can cause picture moving.
In case there is any magnetics such as high capacity transformers, large current power lines, and electric equipments near the monitor, keep them away from the monitor.
OK
NO
END
It is need to check and repair the monitor.

General Troubleshooting Guide




11
Color Patterns visible on the screen
Are Moire color fringes visible with some images?
(e.g. Windows shutdown screen)
Moire is the phenomenon interference fringes are visible on the screen. It occurs due to the interference between the regular pattern of video and phosphors layout pattern of CRT, and it is not a fault but fringe of light and darkness (or colored fringe).
Adjust MOIRE (Horizontal or Vertical).
The moire level on the screen can be reduced.
OK
NO
YES
END
It is need to check and repair the monitor.

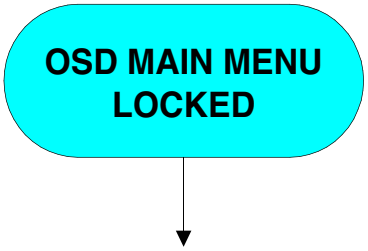
General Troubleshooting Guide


11
MOIRE
: Moiré is a natural effect or phenomenon of CRT that has the appearance of a wavy pattern which is repetitive and superimposed on the screen as ripple images. , not just Philips monitor had. These are a few suggestions to help for reducing or minimizing the effect.
- Some monitors have a Moiré cancellation feature, activate it to the on position or adjust the Moire cancellation function via the OSD manipulation on the monitor.
- Change resolution to the recommended standard for the specific monitor size.
- Change Window viewing pattern/scheme to a pattern where the moiré is less visible.
- Change horizontal and vertical size to optimize the reduction of the moiré effect.
OK
NO
YES
END
It is need to check and repair the monitor.

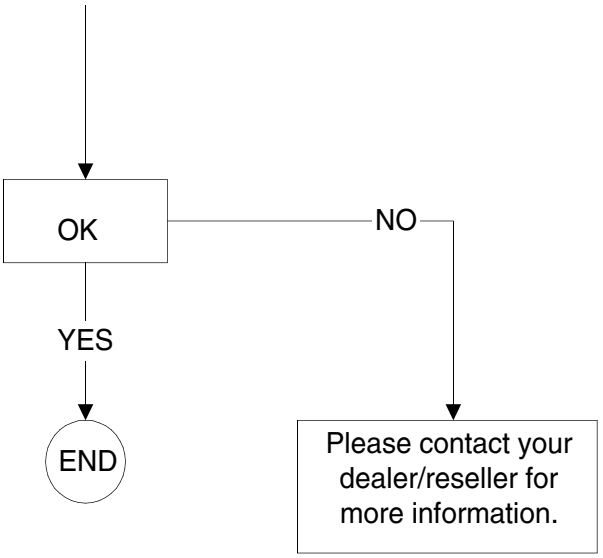
MOIRÉ

A fringe pattern arising from the interference between two superimposed line patterns. In a monitor it comes from the interference between the shadow mask pattern and the video information (video moiré), and between the shadow mask and the horizontal line pattern (scan moiré). It shows itself as wavy patterns on the screen and becomes more noticeable as monitor resolution increases. Since the video signals varies continuously, little can be done about video moiré. Scan moiré depends on the horizontal scanning frequency and can be alleviated by appropriate choice of this frequency. Autoscan (MultiSync) monitors, however, which operate over a range of scanning frequencies, may sometimes exhibit moiré in certain video modes.

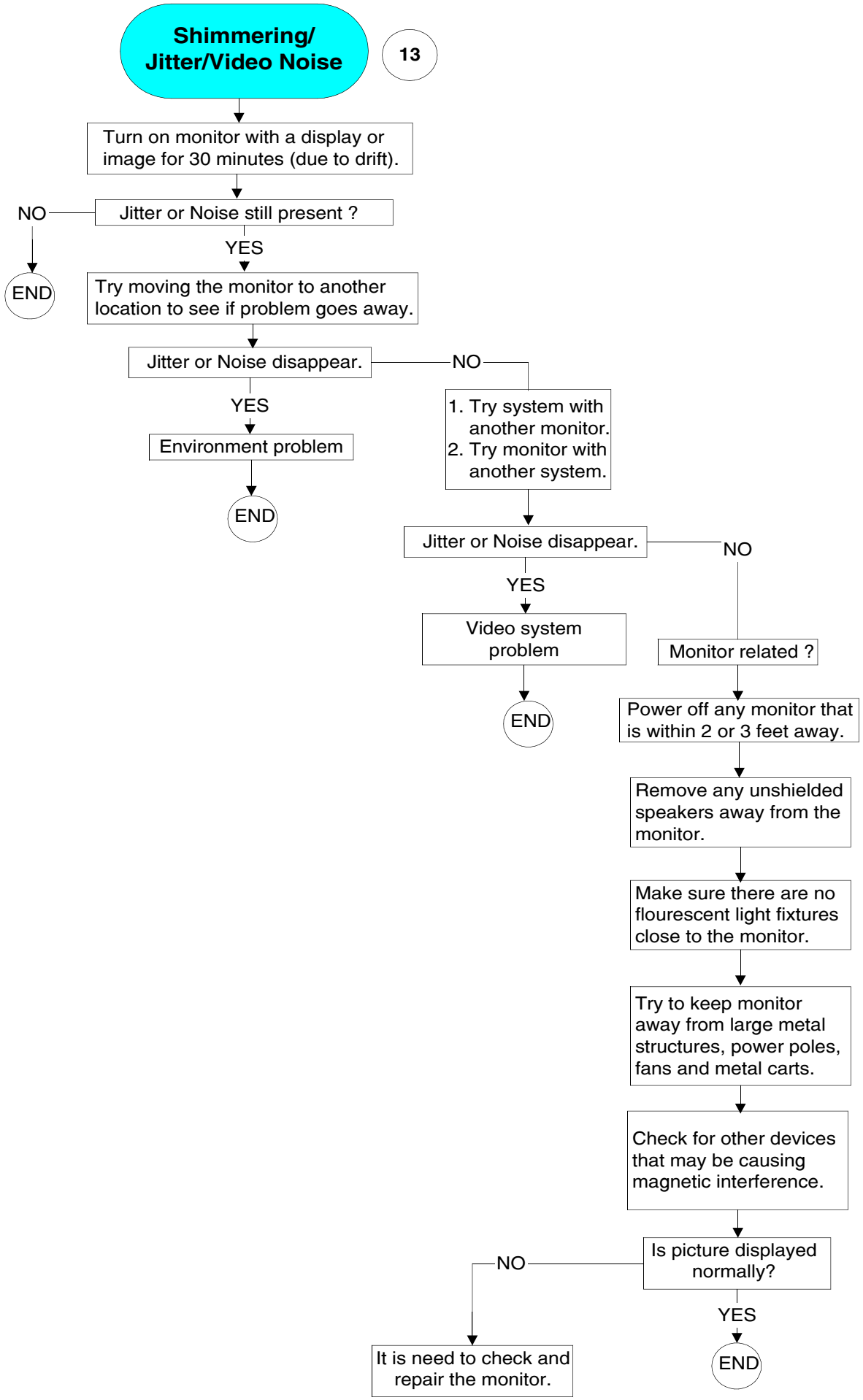
Several sources can act as a catalyzer to produce Moire. They are : The CRT, shadow mask, the electron beam spot size, the resolution, video patterns, and the horizontal and vertical size.

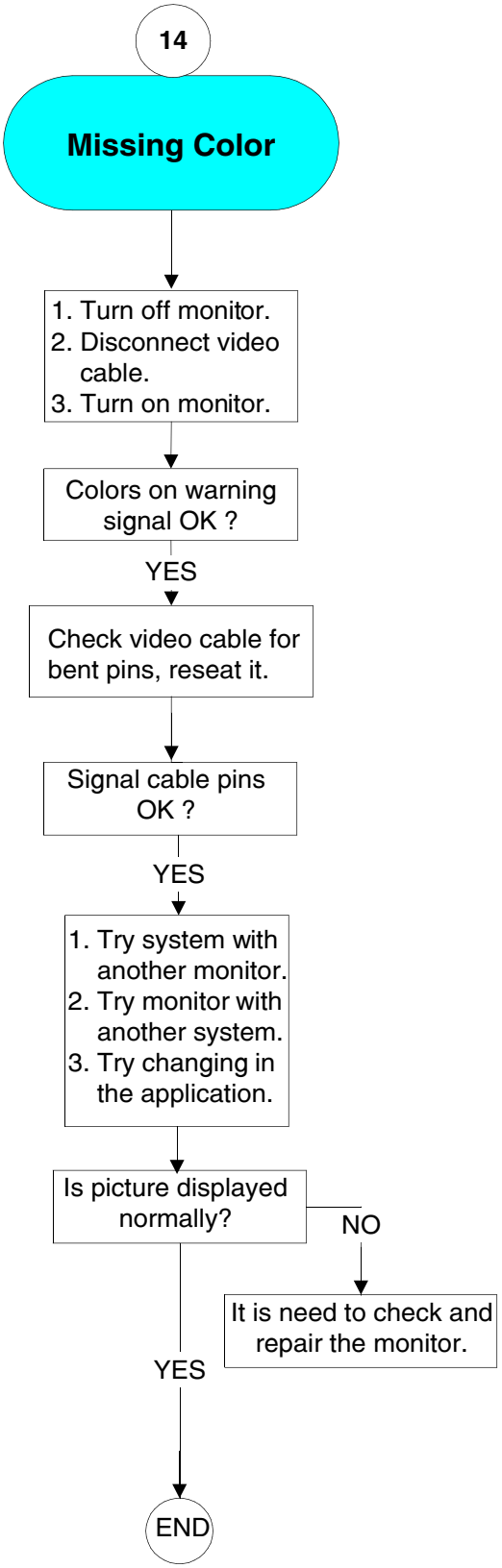


Press and hold the OSD menu key for about 10 seconds ,
until picture displays "OSD MAIN MENU UNLOCKED"



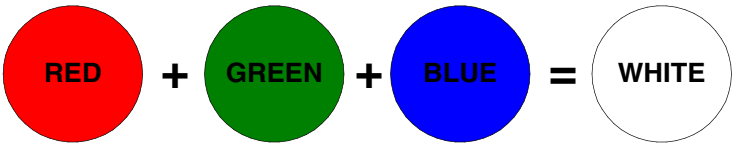
General Troubleshooting Guide


Shimmering/ Jitter/Video Noise
13
Turn on monitor with a display or image for 30 minutes (due to drift).
Jitter or Noise still present ?
NO
YES
END
Try moving the monitor to another location to see if problem goes away.
Jitter or Noise disappear.
NO
YES
Environment problem
END
1. Try system with another monitor.
2. Try monitor with another system.
Jitter or Noise disappear.
NO
YES
Video system problem
END
Monitor related ?
Power off any monitor that is within 2 or 3 feet away.
Remove any unshielded speakers away from the monitor.
Make sure there are no flourescent light fixtures close to the monitor.
Try to keep monitor away from large metal structures, power poles, fans and metal carts.
Check for other devices that may be causing magnetic interference.
Is picture displayed normally?
NO
YES
It is need to check and repair the monitor.
END

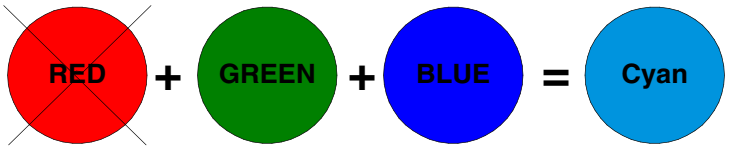


There are 2 easy ways to determine the Missing color problem.

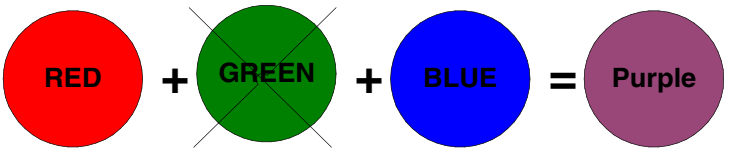
1. View an image that is supposed to be "White".
   If one of the colors (RGB) is not functioning.
   White can not be produced.
2. View an image that supposed to contain Red, Green and Blue.
   Color problems will be apparent when one or more of these colors can not be displayed.



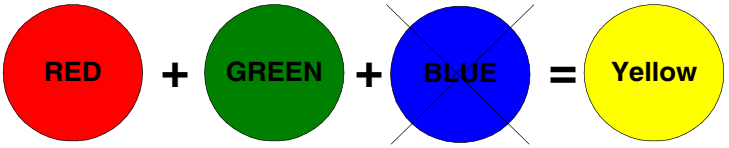
Cyan Color means that the red gun is missing.



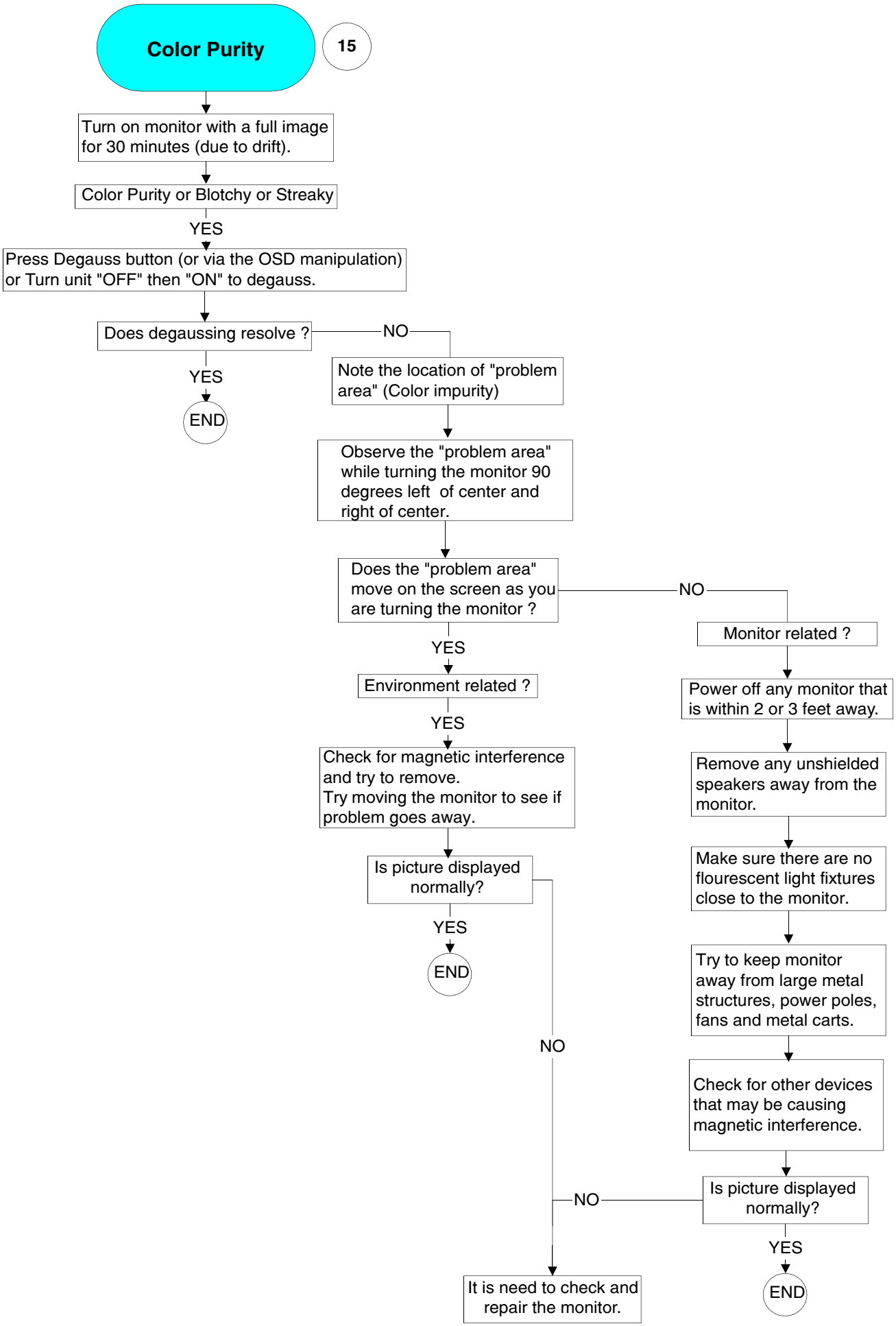
Magenta or Purple Color means that the green gun is missing.

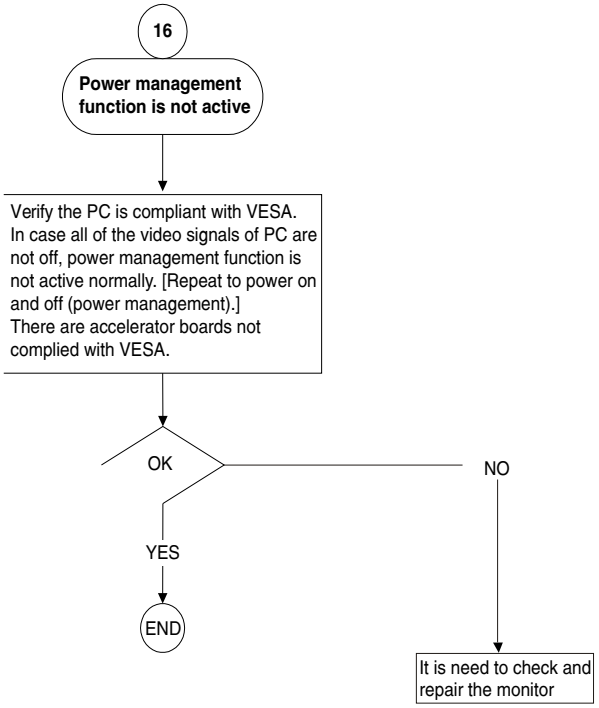


Yellow Color means that the blue gun is missing.

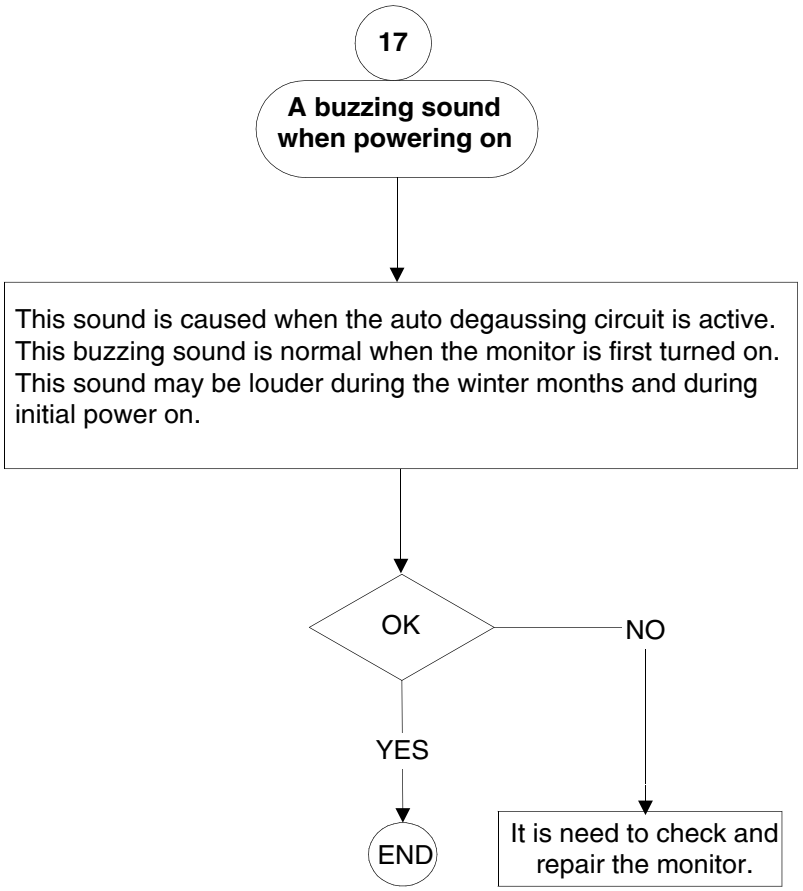


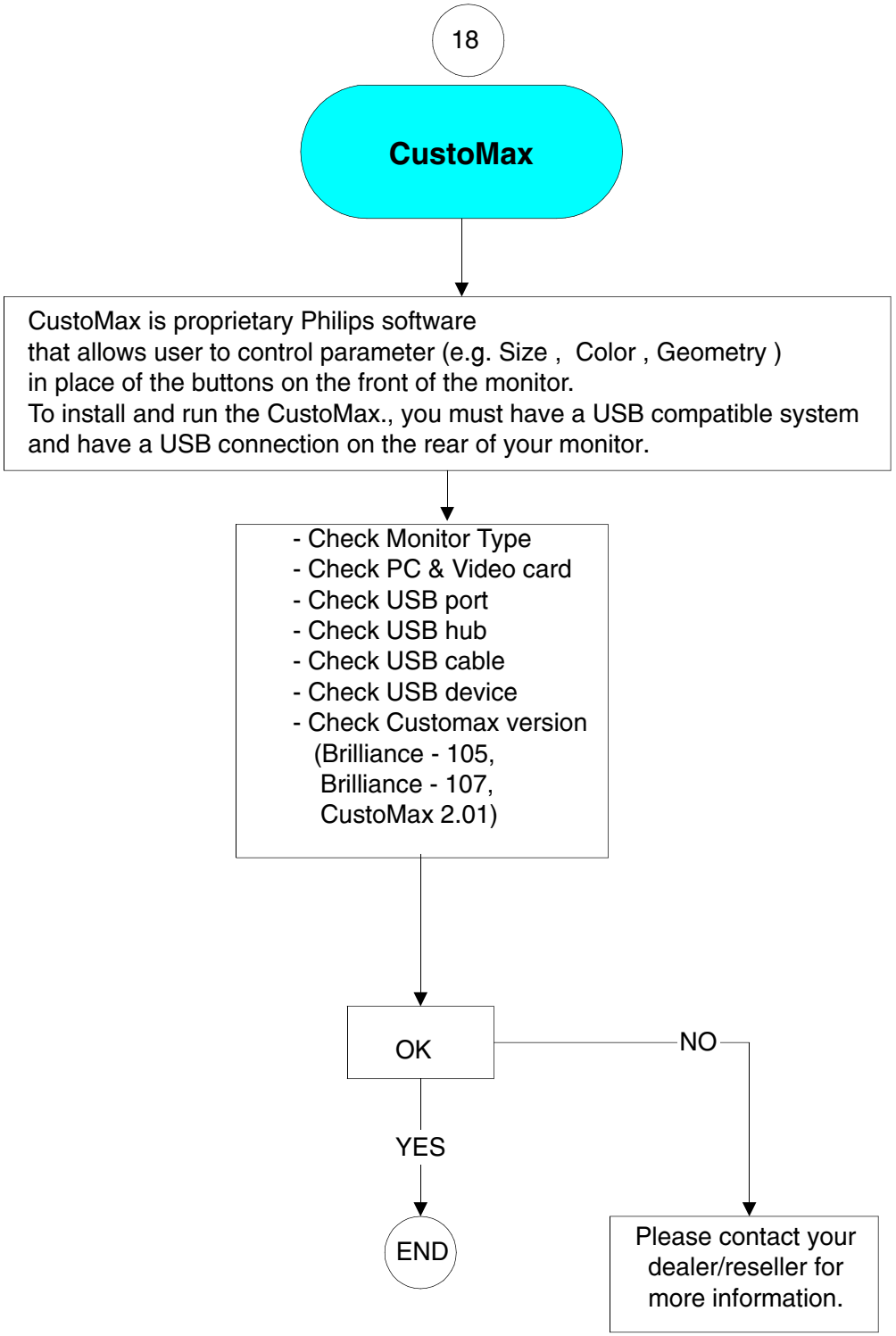
General Troubleshooting Guide


Color Purity
15
Turn on monitor with a full image for 30 minutes (due to drift).
Color Purity or Blotchy or Streaky
YES
Press Degauss button (or via the OSD manipulation) or Turn unit "OFF" then "ON" to degauss.
Does degaussing resolve ?
NO
YES
END
Note the location of "problem area" (Color impurity)
Observe the "problem area" while turning the monitor 90 degrees left of center and right of center.
Does the "problem area" move on the screen as you are turning the monitor ?
NO
YES
Environment related ?
YES
Check for magnetic interference and try to remove.
Try moving the monitor to see if problem goes away.
Is picture displayed normally?
YES
END
NO
It is need to check and repair the monitor.
Monitor related ?
Power off any monitor that is within 2 or 3 feet away.
Remove any unshielded speakers away from the monitor.
Make sure there are no flourescent light fixtures close to the monitor.
Try to keep monitor away from large metal structures, power poles, fans and metal carts.
Check for other devices that may be causing magnetic interference.
Is picture displayed normally?
NO
YES
END


16
Power management function is not active
Verify the PC is compliant with VESA.
In case all of the video signals of PC are not off, power management function is not active normally. [Repeat to power on and off (power management).]
There are accelerator boards not complied with VESA.
OK
NO
YES
END
It is need to check and repair the monitor

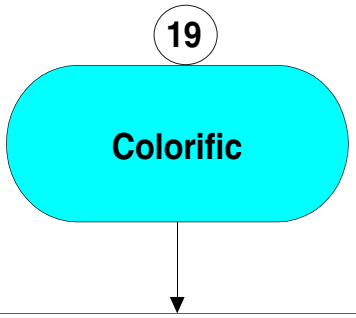
General Troubleshooting Guide


17
A buzzing sound when powering on
This sound is caused when the auto degaussing circuit is active. This buzzing sound is normal when the monitor is first turned on. This sound may be louder during the winter months and during initial power on.
OK
NO
YES
END
It is need to check and repair the monitor.


18
CustoMax
CustoMax is proprietary Philips software
that allows user to control parameter (e.g. Size , Color , Geometry)
in place of the buttons on the front of the monitor.
To install and run the CustoMax., you must have a USB compatible system
and have a USB connection on the rear of your monitor.
- Check Monitor Type
- Check PC & Video card
- Check USB port
- Check USB hub
- Check USB cable
- Check USB device
- Check Customax version
(Brilliance - 105,
Brilliance - 107,
CustoMax 2.01)
OK
NO
YES
END
Please contact your
dealer/reseller for
more information.

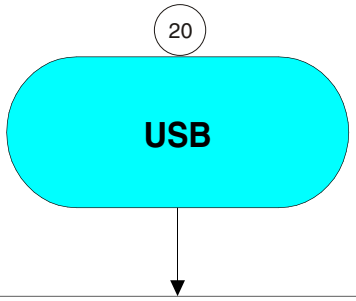
Features:
CustoMax for monitors is a software program for adjusting the screen geometry, color quality, image quality and hardware and software settings of your display.

General Troubleshooting Guide



Colorific is a color matching software that helps user match the monitor
and printer to fulfill the requirement of WYSIWYG (what you see is what you get) .
The Colorific software is the property of Sonnetech ,Ltd.
Only certain Philips monitor Models are equiped with the software.
If you have special interesting , please hit the web site "http:\www.colorific.com".

The compatibily problem with Windows :
Colorific 4.2 or below issued before Sept 98 cannot run in Win98.
Colorific 4.24 (CM5800) manufactured before May 1998 and issued by Feb 98 can support Win 98.
Colorific4.3 can fully support in Win 98



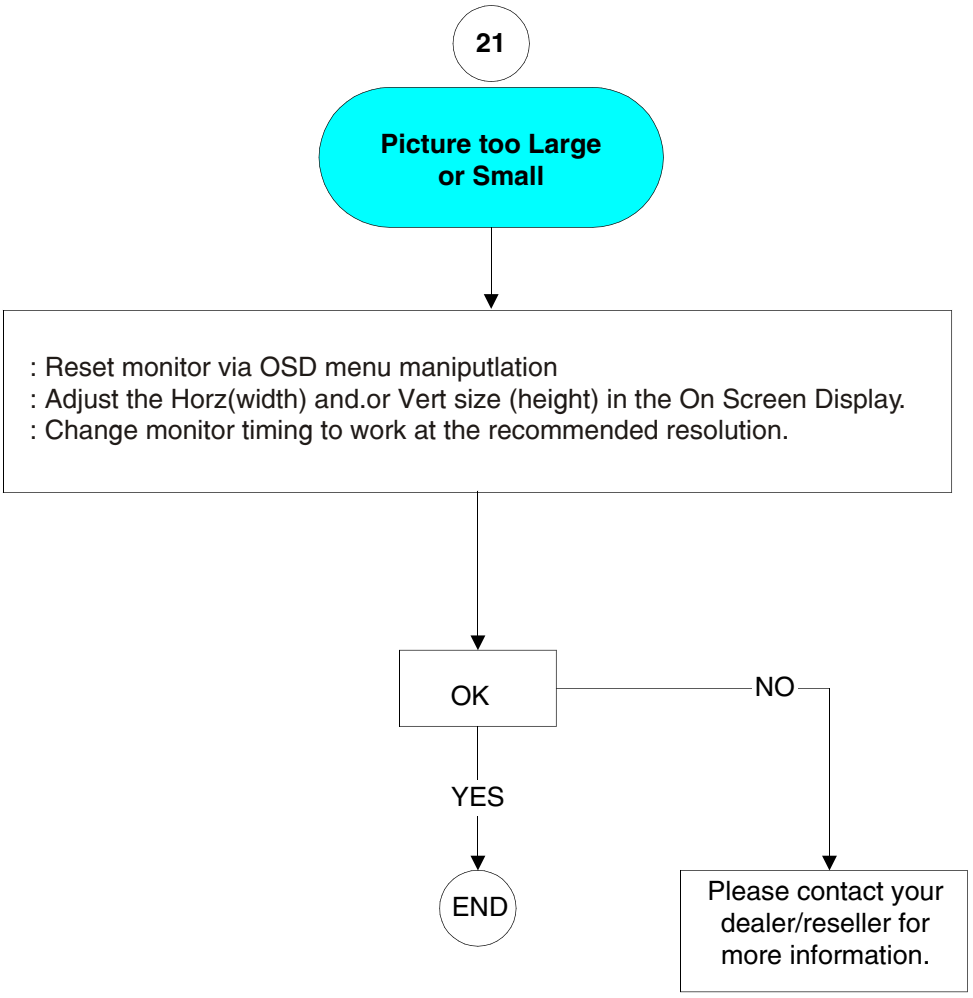
USB = Universal Serial Bus

USB automatically determines resources (like driver software and bus bandwidth) required by peripherals.
USB makes necessary resources available without user intervention.
It is designed to meet Microsoft Plug and Play (PnP) specification, meaning users can install, and hot-swap devices without long installation procedures and reboots.
It allows 127 devices to run at the same time on the bus.

USB bus provides two types of data transfer speed -- 1.5Mbps and 12Mbps and it can provide a maximum of 500mA of current to devices attached on the bus.
Universal means all peripherals share the same connector.
Serial simply defines devices can daisy chain together.
Universal Serial Bus 1.1, the de facto external connectivity standard for Mac and PC, has picked up the speed after its slow adoption by peripheral manufacturers, users and PC OEMs.

USB 2.0 :
Drafted by Compaq, Hewlett Packard, Intel, Lucent, Microsoft, NEC and Philips, USB Specification version 2.0 will increase device data throughout up to 480Mbps, 40 times faster than USB 1.1 devices.

General Troubleshooting Guide


21
Picture too Large or Small
: Reset monitor via OSD menu maniputlation
: Adjust the Horz(width) and.or Vert size (height) in the On Screen Display.
: Change monitor timing to work at the recommended resolution.
OK
NO
YES
END
Please contact your dealer/reseller for more information.